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EDISON
ELECTRIC INSTITUTE
BULLETIN

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THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

June, 1945-1946

SOURCE AND DISPOSAL OF ENERGY—MONTH OF JUNE

	1946	1945	%
GENERATION* (Net)			
By Fuel Burning Plants	10,941,261,000	11,859,429,000	− 7.7
By Water Power Plants	6,680,219,000	6,974,364,000	− 4.2
Total Generation	**17,621,480,000**	**18,833,793,000**	**− 6.4**
Add—Net Imports Over International Boundaries	146,140,000	173,325,000	−15.7
Less—Company Use	119,336,000	118,333,000	+ 0.8
Less—Energy Used by Producer	228,993,000	128,404,000	.....
Net Energy for Distribution	**17,419,291,000**	**18,760,381,000**	**− 7.1**
Losses and Unaccounted for	2,234,283,000	2,155,659,000	+ 3.6
Sales to Ultimate Customers	**15,185,008,000**	**16,604,722,000**	**− 8.6**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of June 30th			
Residential or Domestic	28,981,734	27,828,587	+ 4.1
Rural (Distinct Rural Rates)	1,303,861	1,177,196	+10.8
Commercial or Industrial:			
Small Light and Power	4,573,158	4,311,459	+ 6.2
Large Light and Power	169,582	154,832	
Other Customers	119,807	117,996	.....
Total Ultimate Customers	**35,148,142**	**33,590,070**	**+ 4.6**
KILOWATTHOUR SALES—During Month of June			
Residential or Domestic	2,954,241,000	2,656,143,000	+11.2
Rural (Distinct Rural Rates)	443,325,000	402,650,000	+10.1
Commercial or Industrial:			
Small Light and Power	2,617,144,000	2,478,341,000	+ 5.6
Large Light and Power	7,962,741,000	9,641,402,000	−17.4
Street and Highway Lighting	147,155,000	146,328,000	+ 0.6
Other Public Authorities	458,817,000	656,141,000	−30.1
Railways and Railroads:			
Street and Interurban Railways	341,842,000	357,545,000	− 4.4
Electrified Steam Railroads	208,619,000	216,394,000	− 3.6
Interdepartmental	51,124,000	49,778,000	+ 2.7
Total to Ultimate Customers	**15,185,008,000**	**16,604,722,000**	**− 8.6**
Revenue from Ultimate Customers	**$278,544,000**	**$277,255,200**	**+ 0.5**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended June 30th			
Kilowatthours per Customer	1,290	1,186	+ 8.8
Average Annual Bill	$42.70	$41.15	+ 3.8
Revenue per Kilowatthour	3.31¢	3.47¢	− 4.6

(*) By courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 14 AUGUST 1946 No. 8

E.E.I. Sales Training Course Prepares Industry's Salesmen for the 'Biggest Selling Job of All Time!'

By John H. Ronayne

ELECTRICAL appliance salesmen of utilities, wholesaler, dealers and contractors throughout the country are taking advantage of the existing appliance shortage to sharpen their selling skill, in preparation for the competitive market that looms ahead . . . the 'biggest selling job of all time,' as a leading utility sales executive calls it.

Alert sales managers have found that the Sales Training Course prepared by the Edison Electric Institute, in consultation with National Electrical Wholesalers Association, teaches the fundamentals of salesmanship and the advanced ideas of appliance selling that will assure an efficient, productive sales staff—able to more than hold its own, no matter how severe the competition. The training material covered in this course, and the unique system of instruction, were carefully designed to meet the present need for thorough sales training —planned to be equally useful as a refresher for the returning veteran, and to give the new recruit the basic knowledge that will assure a successful selling career.

This acute need for a dual sales training program was foreseen back in 1943, when preliminary work on the EEI course began. For this reason, basic sales training is emphasized in the course, with a total of eight sound-slide films devoted to fundamentals of salesmanship. Residential and commercial sales are discussed in four films each, and rural sales, in two films.

Each film is accompanied by a salesman's manual, expanding the points made by the film, which is distributed to students for permanent study. A silent trailer film, for discussion purposes, and a leader's manual, to assist the instructor conducting each meeting, are also available with each sound film.

The inherent flexibility of the EEI course is revealed in the descriptions of its varied presentations that follow. Planned to be an all-industry course, it has proved itself to be exceptionally efficient in training all elements of the industry within any utility's territory along the same lines, with the resulting benefits in customer contacts. By teaching all salesmen the same basic principles of salesmanship, it facilitates the transfer of men from one department to another.

With the release of the course early this year, thousands of electrical appliance salesmen began their careers by absorbing the practical, salesbuilding information contained in the EEI course.

Electrical Association of Philadelphia

Among the outstanding early users of the EEI program was the Electrical Association of Philadelphia, which started the Basic Sales Training Course for its members' sales forces on Jan. 28. The enthusiasm with which the course was received was so great that another group of students was soon organized.

The first group, with 273 trainees, was divided into ten classes. Each class met one evening weekly for twelve consecutive weeks, covering the Basic and Residential sales training courses.

Within three weeks after the starting date, a waiting list of 103 had accumulated. A second group was organized, four more classes were added, and training began on Feb. 19, with a total enrollment of 121.

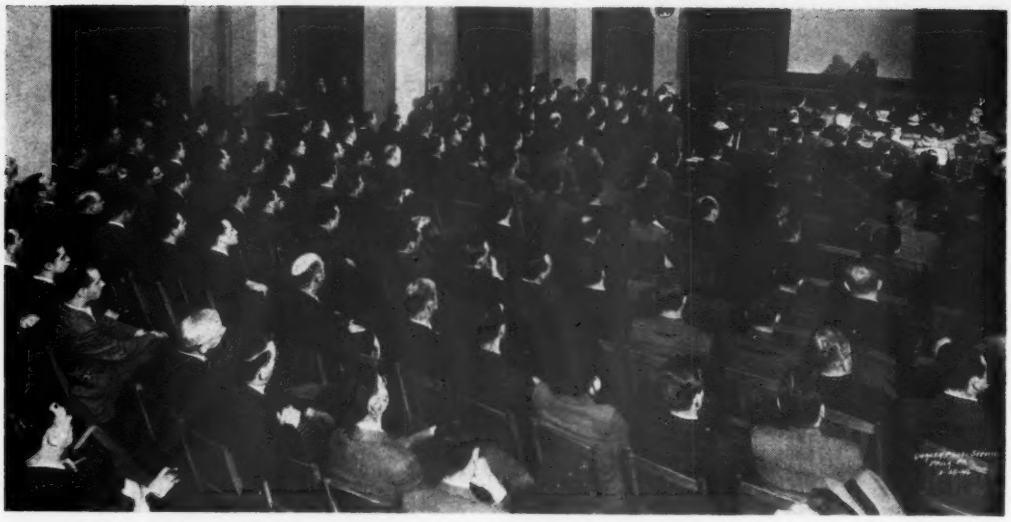
The course was sponsored by 29 wholesaler and distributor members of the Association. It was originally offered to dealers and their sales staffs, but hardware and department stores also were represented in the 123 companies who had personnel receive the training.

About 20 per cent of the students were owners and heads of dealer firms. In some cases, persons who had been promised jobs when more appliances were available paid the fee themselves, to prepare for an appliance selling job.

Ten instructors, recruited from wholesaler, distributor and utility personnel, handled the instruction, and received compensation. Each class had a paid operator for the projection equipment. Philadelphia Electric Company provided classroom space.

According to J. A. Morrison, Secretary of the Association, it was found that the trailer films were highly successful in arousing questions among the students, and allowing an emphasis of specific points by the instructor. As the trailer frames appeared on the screen, questions came more easily into the trainee's mind, and were more freely advanced.

The course was concluded with a dinner meeting on May 27, at which certificates of merit were presented to each student completing the course. H. B. Bryans, Executive Vice President of



An inspiring talk by George E. Whitwell, Vice President in Charge of Sales, Philadelphia Electric Company, launched the Association's Sales Training Course in the auditorium of the Edison Building.

Philadelphia Electric Co., congratulated the graduates, for having the foresight to improve their selling knowledge during a period when there was little to sell. Plans to repeat the course this fall are being discussed.

Utah Power & Light Co.

Utah Power & Light Company, depending upon dealer sales forces to build its electric load, considered the EEI Sales Training Course to be an essential factor in preparing these salesmen to do a successful job. An extensive plan to bring the course to all elements of the electrical industry within company territory was prepared by General Sales Manager W. A. Huckins.

His first step was to present the program to all utility sales personnel, both as a refresher course, and to select from among them a staff of instructors to conduct classes for wholesaler and dealer groups. A total of 44 utility employees completed the course, including home service, dealer contact, lighting and commercial representatives.

The course was given on company time, with personnel divided into two classes. Training was completed in four days of concentrated work. Special training was given to the eight students who were selected as instructors.

A preview of the entire EEI training program was then presented to a cross-section of distributor and dealer executives, under the auspices of the Intermountain Electrical Association, and met with a very favorable response.

Wholesaler and distributor sales forces were the first to receive the course, which was given in their own offices, in accordance with their own time arrangements. Instructors were furnished for each class by the power company. The distributor sales forces of General Electric, Westinghouse, Graybar and several independent distributors took this training.

Following completion of the distributors' training program, the Association organized dealer groups for instruction. Classes were held first in Salt Lake City and Ogden, with training programs to follow in the company's other divisions, until all dealers in the company area receive this training.

Follow-up classes, dealing with training on specific products, are then held by each distributor of a major appliance line for his dealers and their salesmen, emphasizing the selling features of each particular make.

As new personnel is added to dealer sales staffs, additional classes will be held for them.

A total of 129 utility, distributor and dealer sales personnel had received the Basic and Residential Courses by the middle of July. Industrial and commercial sales training had been given to 43 salesmen, this last program being featured by a week-long Industrial Sales Training Conference for personnel of Utah Power & Light Company and Western Colorado Power Company.

Electric Institute of Boston

Utility, wholesaler, retailer and contractor members of the Electric Institute of Boston strongly recommended that the Institute sponsor the EEI course, and urged their salesmen to attend. Careful planning, so that the course might best meet local conditions, was an outstanding feature of the Institute's staging of the program.

Individual classes were limited to 20 members, so that time for personal attention to each member and discussion of individual needs would be available to the instructor. Morning, afternoon and evening classes were organized, to suit individual preference. One lesson per week was given to each class, in a room set aside by the Institute.

Lessons proved popular among registrants from the very first. Of 171 students enrolled in the first group, 157 graduated. According to Julius Daniels, Merchandise Manager, Boston Edison Company, 18 members of the group had no previous selling experience, and about 25 were returning veterans. The majority were seasoned salesmen, eager to brush up their sales ability for the sharp competition ahead.

Henry J. Erath, a well known electrical representative, was engaged to present the course. His long experience in sales training, and his enthusiasm for selling, enabled him to help the students to the greatest possible degree.

At the close of the basic course of eight meetings, the Institute presented certificates to those completing the course. George C. King, Sales Manager of the power company, headed the list of speakers.

A second series of classes is already in progress. Members of the Institute are

One of the sales training classes at the Electric Institute of Boston.

planning to have their entire sales organizations trained through the EEI program.

Comments among those attending, regardless of age or experience, were universally favorable. One salesman said, "This is the first time since 1910 that I have enjoyed attending a course on basic sales training . . . my only regret is that I did not have a course on sales training, such as this, thirty-five years ago."

New Jersey Power & Light Company

How the EEI sales training program can be successfully presented by an average size utility, serving an extensive territory, is illustrated in its use by the New Jersey Power & Light Company.

The size of the area served necessitated that it be divided into two parts, with a weekly class held in each, for dealers and their salesmen. The eastern half of the territory scheduled its meetings on Tuesday evening, at the company headquarters in Dover. Western dealers attended meetings on Wednesday evenings, at Washington, N. J.

Each session followed the plan suggested by EEI, and lasted about one hour and a half. Instructors were supplied by the utility. Considerable discussion and interest in the subject matter was noted at the meetings.

Average attendance at the Dover meetings was 40 persons, and at Washington, 30. A total of 79 persons attended the final combined meeting at Dover, at the close of the course.

Summing up the results of the course, R. J. Rehrer, Domestic Sales Manager of the utility company, said that "All who attended were very much satisfied with the course and its presentation. We have already announced the specific residential course to be presented in the fall. From all indications, we will have a much larger attendance."

Comments made by various dealers echoed Mr. Rehrer, one saying, "All seven of my salesmen received fundamentals in sales training that I would not have been able to give them in any other way. I am looking forward with real interest to the next course in the fall."

Houghton County Electric Light Company

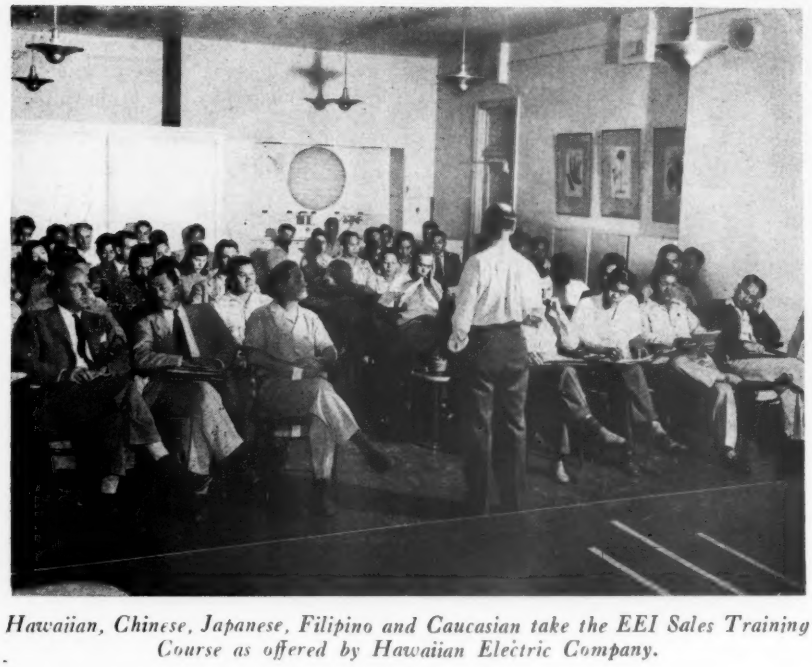
Houghton County Electric Light Company, Houghton, Mich., realizing the importance of maximum dealer cooperation in capitalizing on the future appliance market, prepared a proposed cooperative program and presented it at a meeting of dealers and contractors in December, 1945. One phase of the program which met with enthusiastic approval was the utility's offer to assist with sales training of dealer staffs.

The EEI course, as yet not released, was explained and all dealers present agreed to enroll personnel when the course became available.

It was decided that the training program would have broader appeal and would benefit by highly experienced instructors, if it could be presented as an adult education course. The state of Michigan's adult education program is administered in the northern part of the state by the Extension Dept., Michigan College of Mining and Technology, at Houghton.

When the attention of educators at the college was brought to this intense interest in sales training, a course was prepared for use with the EEI materials serving as texts. E. J. Townsend, Professor of Engineering Administration, was assigned as instructor.

Graduation night at the Houghton County Electric Light Company's training course. L. C. McClurkin, Company President, is third from right, first row.



Hawaiian, Chinese, Japanese, Filipino and Caucasian take the EEI Sales Training Course as offered by Hawaiian Electric Company.

Forty-five sales people enrolled for the combined Basic and Residential sales training courses, and were divided into three classes of fifteen each. Sessions were scheduled weekly for twelve weeks. An informal atmosphere was encouraged, to promote maximum discussion. Liberal use of blackboards helped to emphasize the sales principles and procedures employed in each demonstration sale.

The utility supplied the records, films and instructor's guides. Those enrolling, or their firms, paid for the salesman's manuals.

Forty-one persons completed the course. At a final dinner meeting, a representative of the power company explained local rates, and gave instructions for computing average monthly operating costs of residential and farm electrical equipment. Certificates were awarded to graduates.

"It is apparent that dealers are fully aware of the immediate need for sales training, and are willing to share in the cost of a cooperative program. It is also evident that a larger number of individuals not presently engaged in appliance retailing would enroll for such training, if invited and encouraged to do so, thereby creating an interested group from which the dealers or utility might draw additional sales personnel," L. C. McClurkin, President of the power company, said in commenting on the EEI course.

Aside from the sales training value to its own employees, the cost of the program to the utility has been fully justified by improved relations with dealer personnel, and their better understanding of the company's position and policies, he added. Mr. McClurkin plans to repeat the course in the spring of 1947, offering the basic, residential and rural sales training programs.

Describing his experience in teaching ing the course, Professor Townsend said: "The overall organization of the course as outlined and prepared by the Edison Electric Institute is exceptionally well done, and contributes greatly in giving the separate meetings a close continuity that might otherwise be difficult to maintain. The manuals, especially, very effectively presented and stressed the selling principles illustrated in the sound slide films."

Hawaiian Electric Company

Sales training conferences for all appliance distributors and their dealers in Honolulu are now being offered by the Hawaiian Electric Company, with The EEI Basic and Residential courses serving as the mainspring of this program. Conferences are conducted under the supervision of L. W. Clifford, Sales Development Counsellor for the utility.

Twelve conferences are presented to each distributor and his associated dealers. Meetings last two hours and are held weekly. An EEI film features each meeting. As each series is completed, the distributor stages meetings for his dealers, at which the sales points of his line are covered.

At present, seven conferences are being held each week. Honolulu now has about 15 full line distributors of appliances, and it is expected that from 350 to 400 sales people will receive the training.

"We have had a wonderful response on the training course, and I feel very confident that when we are finished we will have a well informed and well trained group of dealers," Mr. Clifford writes. "We are planning to make this training course a continuing activity, for the benefit of new dealer salesmen who will be hired in the months ahead."

Additional training on the electric range and water heater will also be provided by the electric company. At the request of many dealers, a conference on the home freezer has been added to the series of basic and residential sales training conferences sponsored by the utility.

Electrical League of Cleveland

The Electrical League of Cleveland is at present sponsoring courses in sales training for two groups of retailers, employing the EEI Basic and Residential films. Ten classes on all phases of electrical appliance sales, with emphasis on electric range and water heater sales techniques, are given to each group. The courses began during the week of July 8.

Skilled instructors, selected from among League members, are provided with small groups of students, so that every step in each man's training may be carefully supervised. Displays and models of equipment are employed, to make the training complete in every detail.

Retailers who complete the 10-week course will be given certificates of merit and rewarded with membership in the League-sponsored Electric Institute of Cleveland. Two refresher classes for the same groups are also planned for this fall.

Sales personnel of the Cleveland Electric Illuminating Company took full advantage of the EEI sales training course when it was made available to them. Salesmen whose records with the company ranged from nine to 21 years showed their interest by regular attendance at classes, prompt completion of assignments and carefully prepared demonstration sales for each meeting, ac-

(*Continued on page* 290)

Major Load Building With Electric Heating

By C. P. Yoder

Presented before EEI Annual Sales Conference, Industrial Sales Section, Chicago, April 2-4, 1946

IF you were offered the means of increasing kilowatthour sales to many of your industrial and commercial customers by such substantial amounts as 50 per cent, 100 per cent, or even more, would you be interested?

You already have that means—in electric heat—together with a logical companion—creative selling.

Let me illustrate what I mean.

The steel barrel plant, Table I, originally used 120,000 kwhr per year. Assembly was by means of hand, gas welding and after spray painting, the barrels were air dried. Production was spotty with critical bottlenecks involving floor space required for drying and uncertain drying time due to variable atmospheric conditions. Customer complaints were also common because of poor finish on the barrels. After installing a 142 kw conveyor type electric drying oven, the annual use became 273,000 kwhr, an increase of 128 per cent. Production was more than doubled, the barrels were automatically handled from assembly until they were loaded in cars for shipment and the quality of paint job was greatly improved. Later, an electric seam welder was added which further increased production and decreased cost. General satisfaction resulted.

A combination gray iron foundry and machine shop, Table II, originally used 350,000 kwhr per year. After installing a 68 kw japan baking oven for baking the finish on cast iron and sheet metal parts, the annual use increased to 566,000 kwhr. The part contributed by the electric oven was 173,000 kwhr, or 49.5 per cent of the original annual load.

In the case of a combined steel foundry and machine shop, Table III, with an annual use of 3,964,000 kwhr, an 800 kw, 1-ton arc melting furnace and a 285 kw annealing furnace were installed. The annual use increased to 7,861,000 kwhr. The part contributed by the melting and annealing furnaces was 3,645,000 kwhr or 92 per cent of the original consumption. Later, a second melting furnace of two tons capacity was added. The annual use increased to 11,446,000 kwhr of which 7,246,000 kwhr, or 182 per cent of the original load, were contributed by the electric heating equipment.

The example shown in Table IV illustrates what a new management did to an old foundry, used principally for gray iron production, under the stimulus of war activities. This example is included because production is expected to continue at about the 1945 level. For the five years prior to 1942, the annual use averaged 470,000 kwhr. Two old arc melting furnaces, one of three ton and one of 1½ ton capacity, which had not been used for years, were reconditioned and put into production. Melting time was speeded up by installing new furnace transformers of 2,500 kva and 1,000 kva respectively. In addition, a 400 kw, car type annealing furnace and four electric core baking ovens totaling 248 kw were also installed. The 1945 use was 4,446,000 kwhr or an increase of 845 per cent over the five year average use prior to the war.

I am not going to burden you with the details of how these sales were accomplished, although each involved interesting and complicated sales problems. The point is that without creative selling on the part of the power salesman plus his knowledge of electric heat, these installations would not have been made. The power salesman knew the plant and its production problems, he knew the policy of the management and he was ready in each instance with a solution, embodying the proper application of electric heat, which resulted in satisfaction to the customer and greatly increased load for the utility.

In case you are curious about those range figures shown with each tabulation, they were added for the benefit of any here who may think more in terms of domestic load than industrial. The total kwhr increase in those four examples is equivalent to 7,667 electric ranges.

That accomplishment would constitute a red letter ending to any annual range campaign. If you have had experience in organizing such projects, you recognize the amount of planning, the details of sales training, the arrangements for wiring allowances, sales bonuses, etc., required to insure success of the venture

TABLE I

STEEL BARREL COMPANY

ORIGINAL ANNUAL USE	120,000 KWH.
AFTER INSTALLING 142 KW. CONVEYOR TYPE, ELECTRIC OVEN	
ANNUAL USE	273,000 KWH.

INCREASE BY ELECTRIC HEAT 128 %

(102 ELECTRIC RANGES)

TABLE II

GRAY IRON FDRY. & MACHINE SHOP

ORIGINAL ANNUAL USE	350,000 KWH.
AFTER INSTALLING 68 KW. JAPAN BAKING OVEN	
ANNUAL USE	566,000 KWH.
CONTRIBUTED BY ELECT. OVEN	173,000 KWH.

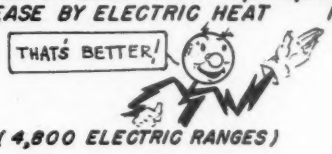
INCREASE BY ELECTRIC HEAT 49%

(115 ELECTRIC RANGES)

TABLE III

STEEL FDRY. & MACHINE SHOP

ORIGINAL ANNUAL USE	3,964,000 KWH.
AFTER INSTALLING 2 ARC MELTING FURNACES AND 285 KW. ANNEALING FURNACE	
ANNUAL USE	11,446,000 KWH.
CONTRIBUTED BY ELECT. HEAT	7,246,000 KWH.
INCREASE BY ELECTRIC HEAT	*182 %*

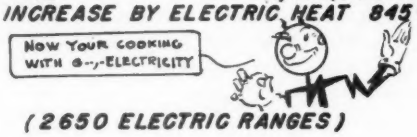


(4,800 ELECTRIC RANGES)

TABLE IV

COMBINED FOUNDRY & MACHINE SHOP

ORIGINAL ANNUAL USE	470,000 KWH.
AFTER INSTALLING 2 ARC MELTING FURNACES, 400 KW. ANNEALING FURNACE AND 4 CORE BAKING OVENS TOTALING 248 KW.	
ANNUAL USE	4,446,000 KWH.
INCREASE BY ELECTRIC HEAT	*845 %*



(2650 ELECTRIC RANGES)

and, of course, there would be a celebration to terminate the event.

But the power salesman responsible for those heating loads goes his normal way with the quiet satisfaction of a job well done and in anticipation of harder nuts to crack.

"But," someone is thinking, "that's all right for utilities serving the metals industries, but we don't have that type of customer."

All right, let's take the case of a manufacturer of glass toys, Table V. This customer was beset with production difficulties due to the long time required to dry the decorative paint applied to the toys. After adopting the recommendations of the power salesman, which included the use of an infrared oven, the difficulties were corrected, production was practically doubled and 36 kw were added to the plant demand, an increase of 26 per cent.

Another example involves the manufacture of fibre-board drums, Table VI. Originally, this customer used 19,200 kwhr per year. More production was required from the plant, already too small. After the power salesman had studied production conditions, bottlenecks, proposed production increase, etc., he came up with a solution that greatly increased production and raised the annual use to 144,000 kwhr, or an increase of 650 per cent. An infrared drying oven accounted for most of the increase.

You will perhaps recall that the last two examples are taken from Section XII of our Power Sales Manual. They are used in that instance to illustrate the technique of "Production Method Analysis." The point I want to emphasize is that the *solution* of the customer's problem included the introduction and proper application of electric heat, as is so often the case in similar studies, and it was this heating load that produced the large increase in electric use in each instance.

While I have used these last two cases to point out some of the applications of electric heat in the non-metals industries, and many others could be given if time permitted, they are also striking illustrations of the fact that customers are frequently unaware of the need or advantage of heat in the solution of their production problems. It was the power salesman in each instance who recognized and demonstrated this need.

The various examples I have given are not at all exceptional. These particular ones were selected because the kwhr or kw data were readily available. Similar opportunities exist wherever electric power is used. Regardless of your territories or the type of your industries, *you* have untapped, potential markets for electric heat—the *type* of applications that has been proved over years of use.

Then we have those recent arrivals, high frequency induction and dielectric heating which I am going to mention only very briefly because any discussion of *this* subject would, in itself, take longer than the time allotted to me. Suffice it to say that—induction and

TABLE V

GLASS TOY MANUFACTURER

DEMAND WITHOUT ELECTRIC HEAT	139 KW.
AFTER INSTALLING INFRA-RED OVEN	
MONTHLY DEMAND	175 KW.
INCREASE BY ELECTRIC HEAT	*26 %*

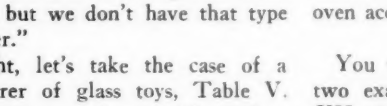
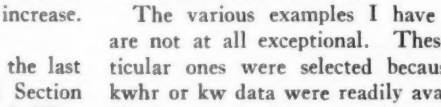


TABLE VI

FIBRE-BOARD DRUM MANUFACTURER

ORIGINAL ANNUAL USE	19,200KWH.
AFTER INSTALLING 60 KW. OF ELECTRIC HEAT	
ANNUAL USE	144,000KWH.
INCREASE BY ELECTRIC HEAT	*650 %*



dielectric heating are already demonstrating tremendous possibilities from the user's standpoint in simplifying production processes and improving production efficiency, although installations to date have been of rather small capacity. Possibly time and other fields of application such as forging and similar uses will also demonstrate their revenue possibilities.

But to get back to the average territory, and let's forget for a minute what we normally call its industries. You all have newspapers, garages, dairies, hotels, hospitals, to mention only a few common to all territories.

Are your newspapers equipped with electric stereotype pots, electrically heated linotype machines, electric mat scorchers?

Are you selling electrically heated vapor degreasers to your garages; do they use infrared for repainting jobs, or for drying washed cars? In Hartford, Connecticut, a car washing production line is being installed which will use an infrared tunnel as a drying medium. The cars in your communities get dirty also and no one likes to wait longer than necessary for this type of job.

What about your dairies, have you investigated the possibilities of electric pasteurizing?

Your hotels and restaurants are fertile fields for electric cooking and baking.

Every community has its quota of hospitals, and according to the Veteran's Bureau a great many more are scheduled for construction. Are we prepared to get the maximum electric revenue from these institutions? In fact, are we too familiar with what a fully electrified hospital looks like? Here is one, Table VII, complete with laundry, serving an average small city. The daily patient population averages about 160. This hospital has a total connected load of 656 kw broken down as follows:

TABLE VII

Use	*Kw Connected*	*% of Total*
Lighting	120	18.3
Laundry	26	4
Electric steam compressor	45	6.9
Cooking and baking	184	28
Sterilizing	161	24.6
Therapeutic equipment	16	2.4
Refrigeration	18	2.7
X-ray equipment	21	3.2
Miscellaneous motors inc. elevators	65	9.9

In my introduction I stressed the fact that present loads can frequently be increased by 50 per cent, 100 per cent or even more by the promotion of electric heat. That is why I am dwelling on the hospital—a type of load common to all territories. Add up the total heating load of this example, consisting of cooking, baking, and sterilizing equipment—and we get 345 kw, or 52.5 per cent of the total connected load; in other words, an increase of 111 per cent over the remaining load.

Numerous hospitals now use electric cooking but very few use electric sterilization. The key to that situation is very simple—high pressure steam. Two of the three leading manufacturers of sterilizing equipment have a rule of thumb which determines their policy in connection with the sale of their equipment. (I am not familiar with the present policy of the third manufacturer.) If high pressure steam is generated, they sell steam sterilizers, if low pressure steam is generated, they sell electrics. From the hospital standpoint, the steam pressure is usually dictated by the presence or absence of a laundry. So, I repeat—the key to complete electrification of a hospital is high pressure steam.

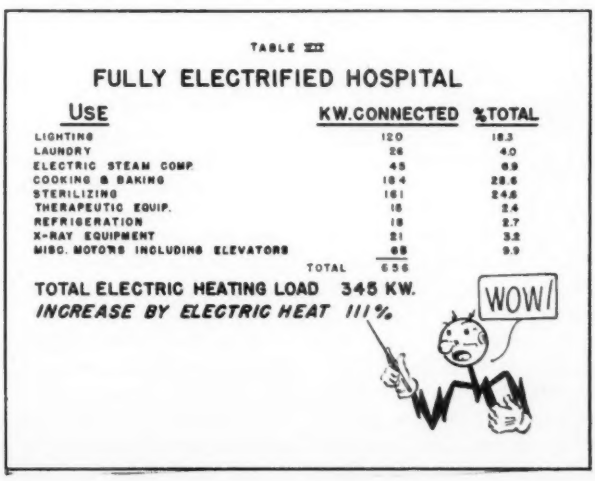
In this instance, creative selling on the part of the power salesman induced the hospital authorities to obtain their laundry high pressure steam from the low pressure boiler plant by means of an electrically driven steam compressor. He thereby not only obtained the cooking, baking and sterilizer loads but also 45 kw from the steam compressor. Perhaps some cooperative interests by the utilities would induce the sterilizer manufacturers to change this rule of thumb sales policy.

These individual examples to which I have referred illustrate what has been accomplished. Are they likewise indicative of what is in prospect for the future?

No doubt most of you have read Francis McQuillin's paper "Turning on the Electrical Switches of Peace," reproduced in the December 1945 EEI BULLETIN. In that paper he presents some significant figures with respect to his company's potential electric heating load. On the basis of a five year prediction, this heating load represents 31 per cent of the total anticipated new load and is topped only by what he terms "conversion of other forms of energy."

A partial survey by another company discloses that 56 per cent of the total potential will be obtained from electric heat. The customers included in this survey cover a wide range of industrial activities such as textiles, ferrous metals, general manufacturing, chemicals, grain elevators, nonferrous metals and alloys and wood working.

Another significant sign is the present attitude of the manufacturers of electric heating equipment. Near the close of the war there was much uneasiness as to the effect of released war production equipment on postwar markets. In fact, in Section II of the "Report of Commercial Planning Committee" this feeling was summarized by the statement, "that industry as a whole will emerge from the war period much over-furnaced and that this business will be rather hard hit for several years after the war." Fortunately these predictions are not materializing. Much of this equipment is being scrapped as unsuitable for peacetime production and, according to one official of a heating equipment manufacturer, his company is buying excess equipment for revamping to fill the needs of customers beyond the present production capacity of his plant. He further stated that their present backlog



of unfilled orders is greater than at any time in the history of his company.

The manufacturers tell us, and this is confirmed by the experiences of many of you, that never before has electric heat been so readily accepted as an important industrial tool and never before have so many men received training in the operation of electric heating equipment. But this was under the stress of war conditions—when competitive forms of heat were in short supply or, in some cases, not available for expanded use. Let's not kid ourselves that under a free competitive market these conditions will automatically continue. Our competition will see to that!

Gentlemen, the facts I have enumerated only emphasize what we all know —that in electric heat we have the greatest load building opportunity available in the industrial field, and much of it is the type of load welcomed by our operating departments—high load factor and unity power factor. But, like Topsy, are we just going to let it grow as it may or, will we, through some form of cooperative action, provide that added stimulation which will insure a job really worthy of this great industry? Now, don't misunderstand me, I'm not going to propose a new type of Bureau or even a new committee. All of the necessary machinery is already available—in the utilities, the manufacturers, their local representatives, the electrical press and several of the technical societies. Probably there are others. Why not coordinate their combined resources in a program of national scope?

Such a project need not be of stereotyped form to which each participant must rigidly comply, for I know too well the varying conditions and policies of each territory and group, but if it were the medium through which cooperative and enthusiastic unity of purpose and action could be promoted throughout the various branches of the industry, what a force and stimulation to effort would develop behind this sales activity!

Some of you here will recall the 1920's when industrial electric heat really came into its own. You will recall that much *individual* effort was expended, but more important, perhaps, you will recall the series of heating schools that were periodically held during that period, from which groups of enthusiastic power salesmen went into their territories and made electric heating history. During the period from 1921 through 1929, electric heating training courses were held each year in various sections of the country, sometimes as many as eight different courses in one year. Since that time only two schools have been held, one in 1931 and one in 1937. Isn't it time to think seriously of reviving this practice? But those schools were not enough! They were backed up by the active cooperation of the manufacturers together with effective support of some of our outstanding utility executives. The predecessor of this Association also organized an active committee devoted exclusively to the advancement of electric heat.

Many of you will recall the 30's when in the depth of the depression, we figuratively pulled ourselves up by our own boot straps through the sale of midget heating units. I still thrill at the possibilities inherent in this little heater (50 w cartridge) or this piece of cable, which the rural boys call "manure wire." They can well be called the seed from which hundreds of kilowatts have grown. The enthusiasm started at that time is still bearing fruit as witness the article in the January 1946 issue of *Load* by L. L. Booth of Consumers Power Company. I was interested in getting more of this story, particularly the relationship of the heating load to the total load of the plant, which manufactures enameled wire and magnet coils. Mr. Booth kindly contributed this additional information. Since 1934, when electric heat was first introduced in the form of a few hundred watts of small heating units, this load has grown until these small units now total 226 kw. Their successful use led to the installation of a 135 kw annealing furnace. From the modest start made in 1934, electric heat now contributes about 25 per cent of the total demand of 1000 kw and annual use of 4,200,000 kwhr. Yes, these little units pay off in big dividends!

How was this midget heating selling job accomplished? By stimulating nationwide enthusiastic cooperation!

It is my understanding that this series of meetings is for the purpose of taking stock and laying the foundation for future activities. Is this not an opportune time to again strike the spark which will generate a national enthusiasm that will carry electric heating sales to heights not previously attained?

In furthering such an idea the following suggestions are offered for your consideration:

1. That plans be immediately developed for a national electric heating school to be held as soon as arrangements can be perfected. This will not only serve as a basic training medium for the new men that are being taken into your sales organizations but also as a refresher course for many older men who may have gotten rusty during the war period.

2. That a comprehensive follow-up program be developed which may serve as a basis for local activities and which will tie in with the overall national project. We have made a start in this direction through the medium of our Power Sales Manual and the facilities outlined by Sherman Knapp this morning, but, in my opinion, it should be strengthened by the development of an outline of procedure which the new men specially may find helpful in developing their own local activities. Which brings me to my third point—

3. That such a program be developed through close cooperation with the manufacturers of electric heating equipment. One way of accomplishing this might be in conjunction with the Heating Section of NEMA.

4. That a procedure be developed to bring up to date overall cost and operating data for various types and applications of heating equipment. Many of you will recall the work of Wirt S. Scott who, practically single-handed, went up and down the country obtaining representative cost figures for the so-called intangible benefits of electric heating. I know his work was of inestimable value to many of us. We need more of it and particularly in connection with what our competition is doing. There is an organization that can be of material benefit in this activity—the National Association of Cost Accountants. Some years ago a suggestion along these lines received favorable response from this organization, but the war intervened before it could be further developed. Perhaps it is time to revive this idea.

5. Develop closer cooperation with the American Society for Metals. I know that many power salesmen are members of this organization and participate actively in local section affairs. They appreciate the important part metallurgists play in decisions regarding the purchase of heating equipment. One way a start could be made would be reestablishment of participation in the annual Metal Shows. Headquarters liaison between our two organizations should be established and stimulated.

(*Continued on page* 291)

Give the Dealer a Break!

By the Dealer Coordination Committee, E. E. I.
E. T. Moore, Virginia Electric & Power Co., Chairman

Ed. Note: The following paper was prepared by the Dealer Coordination Committee, Edison Electric Institute, to aid those companies who have not yet completed their post-war plans for cooperation with dealers.

MANY new manufacturers are entering the electrical appliance business. All of the older manufacturers are planning to step up their production of appliances far beyond pre-war levels. Numerous surveys and field checks indicate that the American public is planning to purchase vast quantities of household electrical equipment as soon as it becomes available. Electric utilities are expecting great increases in residential use of electricity and are anxious to take full advantage of every opportunity to secure the additional business which a greater acceptance of electrical living will bring.

There is a wide difference of opinion among electric utilities as to how they should approach this post-war residential market. Some companies which have always been active in merchandising appliances have decided to withdraw from this field and devote their residential sales efforts toward building sales through dealers. Other companies which gave up merchandising before the war have decided to re-enter the field on a restricted basis. Still others will continue their pre-war practices with regard to merchandising and will either leave the dealer problem to take care of itself or will set up new "Dealer Coordination Departments." There is no uniformity of opinion as to which method will be more effective or more desirable. Even among individual companies, there is usually a division of opinion as to whether or not the company should sell appliances, since conditions vary in almost every local service area.

For the past 18 months the Dealer Coordination Committee of the Edison Electric Institute has collected surveys, plan books, and other data from trade magazines and from operating companies throughout the country with the hope that this material could be assembled into a report which would reflect the trends in the industry toward dealer development. The following summary will outline the Committee's observations on this very important subject:

Number of Dealers

Indications at the present time are that there will be approximately 100,000 franchised major appliance dealers serving our 30,000,000 domestic electric customers. This means that there will be, on an average, one major appliance dealer for each 300 domestic electric customers. Whether this number is too many, too few, or just about right, time alone will tell. These figures do, however, indicate that there will be about three times as many appliance dealers post-war as we had pre-war.

Appliance Financing

Local banks throughout the nation are very interested in financing appliance sales for local dealers. There will apparently be very little demand from dealers for utility-sponsored, "pay with your electric bill," finance plans. Due to the status of Regulation W, there is much uncertainty as to the future possibilities of appliance financing.

Advertising

Most companies have decided to use their post-war appliance advertising to build acceptance for various uses of electricity rather than for advertising a particular brand of products. Many companies are hoping that dealers will tie in their advertising with that of the local utilities, particularly during campaign periods, etc.

Home Service Assistance

The Home Service Departments of practically all companies are being expanded and dealers are being offered the assistance of power company home economists for home demonstrations, group demonstrations, training classes, etc. Utility home service employees, generally, are being trained to understand and demonstrate all brands of equipment. Many manufacturers are employing home service specialists who will work with local power companies economists throughout the country.

Dealer Bulletins

Most companies have decided to publish a dealer bulletin devoted to items of general interest to all dealers and distributors. These bulletins can be used to keep dealers posted on sales plans, company policies, competitive fuels, etc.

Sales Training

The sales training films which have been made available through E. E. I. are being used by operating companies to train dealers and their salesmen. Many companies which have not yet started these courses are planning to do so when appliance production gets under way.

Trade Associations

Utility companies are working with local groups in organizing trade associations, electric leagues, etc.

Wiring and Advertising Subsidies

Several companies have announced plans for participating in installation costs of major appliances sold by dealers on the same basis as on sales made by company representatives. Other companies will not offer wiring subsidies but will make advertising allowances or load-building bonuses to dealers' salesmen. However, the trend in the industry seems to be *away* from all forms of subsidies.

Dealer Contact Departments

Practically all companies are planning to use dealer contact representatives who will devote their entire time to assisting and training dealers and dealers' sales people.

Market Studies

Many companies have conducted comprehensive surveys among residential consumers as a means of collecting data on market possibilities, appliance acceptance, etc. Practically all companies will keep accurate lists of franchised dealers and will keep in close contact with all manufacturers' representatives and distributors in their service areas.

BASIC POLICIES IN DEALER PROGRAMS

The general policies as outlined in the "Suggested Appliance Merchandising Principles," published in 1945 by the Commercial Division, General Committee, will be adhered to by all companies who are planning to merchandise. The following recommendations of the Deal-

er Coordination Committee are suggested as basic and fundamental to any successful dealer program:

1. *Be Sincere:*

Dealers soon recognize the sincerity of any announced program of cooperation. Keep in mind that cooperation means more than simply "getting the other fellow to do what you want him to do."

2. *Be Fair:*

Don't offer special prices, special terms or special discounts which dealers cannot offer. Keep your compensation plan in line with other merchants who are selling appliances.

3. *Be Impartial:*

Don't show preference among dealers and don't permit your employees to criticize other products which are not being sold by the company.

4. *Be Helpful:*

Many dealers are new in the appliance business and will need the advice and assistance of the local utility in promoting sales of domestic electric appliances. Some of these new-comers will develop into very valuable sales allies if proper cooperation is furnished to them. "The best way to make a friend of a dealer is to be a friend to a dealer."

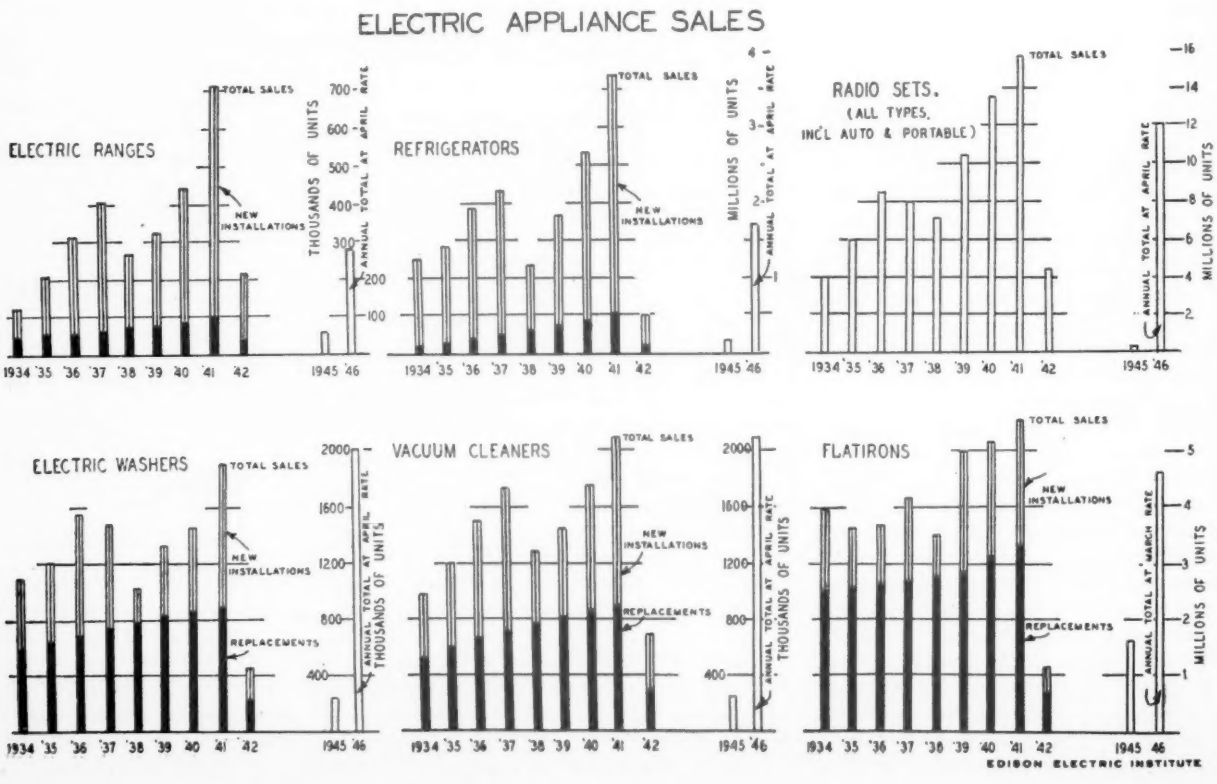
Electric Appliance Production Rapidly Approaches Pre-War High Levels

SHIPMENTS of domestic electric appliances are rapidly approaching the high levels of the immediate pre-war years, according to statistics recently released by the Civilian Production Administration. For the month of April, 1946, shipments of leading appliances compared as follows with the average month of the years 1940-1941:

	April, 1946	*Avg.* 40/41	%
Electric Ranges	23,000	47,000	49
Refrigerators	143,000	309,000	46
Radios (all kinds)	1,000,000	1,100,000	91
Washing Machines	177,000	158,000	113
Vacuum Cleaners	174,000	156,000	112
Flatirons	382,000*	380,000	101

* March, 1946.

The chart shows the annual sales of these appliances since 1934, compared with an annual total for 1946 taken at 12 times the April rate. Although production during the first half of this year has been retarded by strikes and shortages of materials, it seems likely that these deficiencies will be more than offset during the balance of the year by the increased output made inevitable by greatly expanded manufacturing capacity, which, in many items, appears to be twice that of the pre-war period.



Economics of Rural Electrification—Rates and Revenues

By E. C. Hathaway
Central Vermont Public Service Corporation

Presented before the Seventh New England Rural Electrification Institute, sponsored by the New England Council, at Massachusetts State College, Amherst, Mass., April 17, 1946.

MY company's interest in rural and farm electrification began forty years ago. An item in the *Electrical World* dated December 1, 1906, reported the consolidation of three local utilities supplying electricity, gas and railway service into the Rutland Railway Light & Power Company. That company's electrical distribution system then consisted of twenty-five miles of line. It stated that "one of these lines is a three mile lighting circuit for farm consumers."

Forty years ago 12 per cent of our distribution pole line mileage was devoted to rural and farming areas, and today more than 85 per cent of the distribution pole line mileage of our company is devoted to serving rural and farming country. We now have 2,500 miles of distribution lines, of which over 2,100 are classified as rural. The present customer density on our rural lines is about four to the mile.

As long as we're talking about rates, I think it will be of interest to compare the rates for electricity in 1906 with the rates today. The rate then was 15c per kwhr for the first 2 kwhr per lamp socket per month and 7.5c per kwhr for the balance and the bill was subject to a 10 per cent discount. Just for the sake of comparison I applied this rate to my own monthly use and found that the 200 kwhr I used last month would have cost me $18.57 net. On today's rate the bill is $6.70—64 per cent less. And this bill for 200 kwhr, namely $6.70, applies to the rural and farm customers too. For the amount of $18.57 any of our farm customers can now get 793 kwhr, nearly four times as much electricity. I suspect I wouldn't use 200 kwhr per month if the rate was as high today, nor would many others.

My company serves most of the southern and central part of the State of Vermont. We supply a very fertile area on both sides of the Green Mountain Range in the Champlain Valley and the Connecticut River Valley on both sides of the river. The total population of the area we serve is about 170,000, which is equivalent to one fair sized city in southern New England or the Middle West.

A lot of the territory is devoted to farming, recreation and lumbering. Former Commissioner of Agriculture, E. H. Jones, says, "For more than seventy-five years dairying has been the backbone of Vermont Agriculture."

The dairy farms of Vermont do a $45,000,000 annual business and a large proportion of the best farms in the State are in the territory which can be best and most economically served by our Company.

These farms are a market for the sale of electricity which we recognize, and experience has taught us that cows are good consumers as well as human beings.

On the basis of the national average consumption per residential customer amounting to about 1200 kwhr per annum and assuming four people in the average family we get an average consumption of 300 kwhr per annum per person which is 25 kwhr per month.

Our studies of the potential market on a Vermont dairy farm producing milk for sale in the Boston and New York City markets reveal that a dairy cow is good for an average monthly use of 16 kwhr.

We arrive at this figure of 16 kwhr per month per cow by listing the various devices and equipment that a typical electrified farm milking 25 cows uses now.

Many such farms are completely equipped and that is the source of our information. This farm requires a milking machine, milk cooler, pump for water supply, a dairy water heater in the milk house, a chore motor and lights for the barns, sheds, etc. These various uses on a 25 cow farm total 4800 kwhr per year which is an average of 400 kwhr per month. That's 16 kwhr per cow per month. Add to this the household use of 1200 kwhr which is approximately the national average household use and this 25 cow farm is a potential customer for 6000 kwhr. At present rates the annual cost of this electricity would be $152 which results in an average rate of 2.5c per kwhr.

At this average rate a milk cow means 40c a month revenue from the sale of electricity amounting to $4.80 per annum. So we have come to respect the dairy cow as a consumer of electricity!

Recognition of the cow as a worthy consumer was given by the War Production Board when it issued its farm line extension order U-1-C authorizing construction of 100 feet of line per cow.

On one occasion not long ago during a conference of electric utility executives (EEI Sales Conference, Chicago, 1944), two of them expressed opinions as to the volume of business required to make the investment in rural lines stand on its own feet. W. H. Sammis, then Vice President of the Commonwealth & Southern Company (and now President of the Ohio Edison Co.), stated that an annual use of $75 worth of electricity was required. G. C. Neff, President of Wisconsin Power & Light Company stated that an annual use of 3600 kwhr per farm would provide a fair return to the utility.

I suspect both men had in mind line construction in middle western states under conditions which are somewhat more favorable to low costs than here in New England and particularly Northern New England.

The development of the various labor saving devices for farm use in the last 10 years is causing some utility operators to become more optimistic towards expansion into rural territory. Since 1937 we have watched the average annual use per farm customer grow from 1250 kwhr to 2287 kwhr, an increase of over 1000 kwhr or 82 per cent. At the same time the average rate paid by farm customers has dropped from 4.46c to 3.23c, a decrease of 27 per cent. This reduction has been brought about by the happy

combination of reductions in rates, monthly guarantees or minimum charges on our part, and the increased use of our good farm customers.

Many a farmer has learned during recent years that 12 to 15 dollars worth of electricity monthly will replace a hired man that cost him a lot more than that much weekly.

During the year 1945 our farm customers paid us an average annual bill of $73.95 for the electricity consumed. Thus we are rapidly approaching the $75 per farm required, according to Mr. Sammis. In the first three months this year the average use per farm has increased 48 kwhr. By the end of 1946 we expect that the average farm use will reach or exceed 2500 kwhr. This is still quite a distance from the 3600 kwhr target specified by Mr. Neff. Our own sights are set for 6000 kwhr per farm per annum, largely because we supply so many dairy farms.

We supply our rural farm customers at the same rates that apply in the cities and villages we serve. The first 20 kwhr are billed at 8c each; the next 30 kwhr are billed at 5c; the next 60 at 3c and all over 110 are billed at 2c. The minimum charge on rural line extensions is $2.00 per month. No long term contract is required. Ordinarily we expect a minimum of three customers to the mile, but where the business warrants we take on business at lower densities. We are planning to serve our whole territory on an area basis so as to completely electrify all the rural territory which is our responsibility to serve. Some of it is lean, but over-all we have solicited 3600 customers who can be served from 1000 miles of new line. This gives an average ultimate density of 3.6 customers per mile. Nearly 200 miles of this has been completed and we have plans to construct 800 miles of line this year which will almost completely cover the towns we serve. We expect there may be a few isolated places that no one can serve economically. Barring delays in the receipt of materials and given an even break on weather we think we can live up to this program. When we get this job done nearly 90 per cent of our distribution pole line mileage will be in rural lines.

This means we have a sizable selling job ahead of us to get our rural and farm customers to purchase and install labor saving devices, equipment and appliances, which will consume electricity in sufficient volume so that these rural lines will support themselves, and not burden the urban consumers. Experience in recent years leads me to believe that we can accomplish this.

The first step we have taken to build up farm use has been to create a small department of farm advisers or experts, consisting of four men whose educational training and experience are agricultural, supervised and directed by our Ralph Bugbee. He's been doing that character of work for us for 11 years. Their job is to show our farm customers how the farm net income can be increased by the intelligent application of electricity. That's why these words appear on the back of the motor vehicle which Ralph drives, "Electrify the Farm—For Profit." Once the farmers kidded Ralph that this message referred to our profit only, but now almost all of them realize it refers to the profit from farm operations. The scarcity of labor during the war years and even now has brought about a far greater appreciation of the value of electricity in farmers' minds.

I have been questioned at various times on the subject of the economics of rural electrification, and also why we have taken such an optimistic view point.

First of all let me say that the men who established the electric utility industry had courage when they risked their capital to enter the new venture. Such courage has been responsible for the growth and prosperity of this country. The pioneers in the electric industry demonstrated their faith and displayed lots of courage. They set for themselves a goal and they worked hard to accomplish their purposes. A great many operators in the last quarter century have not had that kind of courage in connection with rural expansion and it has been understandable. Until recent years there was not much use for electricity on farms except lighting and for that reason investments in rural lines were scanned pretty carefully. I have been told of cases where customers in the country used electricity very sparingly, even to the extent of watching the meter daily until they had used up the minimum charge and then ceased to use it until the meter was read again the following month.

But in these days when there are so many ways in which our rural and farm people can use electricity profitably to themselves we have a right to assume a courageous attitude on rural electrification.

The ideas I am about to express on the economics of rural electrification are my own, and they form the basis for the recommendations I have made to the executives of my own company in recent years.

Every live business is alert to increase its output and sell it at a profit. Practically all of them are in a highly competitive market. Hence they have to sharpen their pencils and calculate as carefully as possible using their best estimates of the increment costs that will accrue.

In this problem it should be our aim to serve as many as possible without burdening the urban consumers already served. That means the new business ought to stand on its own feet as soon as possible after it is connected.

We consider the whole territory we serve as a unit. We look upon it as our responsibility to serve everybody. Not only is it a responsibility, it is an opportunity. There probably will be a few who are so remotely located as to make it obvious that they cannot be served economically by us or anyone else.

Not every single customer or isolated mile of line will support itself anymore than it can be said that every urban customer is profitable. Every utility knows that it has a group of small or minimum users who are unprofitable, yet they are served because it is a public responsibility.

Last year revenues from farms and rural dwellers served from our rural lines averaged $240 per mile. It is difficult to determine exactly the operating and maintenance expenses per mile of line but if we apply unit costs for one operating district which serves practically all rural business we ought to get close to the real costs. By doing so I arrive at a figure of about $170 per mile. Thus $240 revenue covers the expenses and provides $70 to take care of reserve for replacement and return on the investment. Besides the farm and rural residential business, which is classified separately and hence easy to identify, there are also some commercial accounts such as an occasional store, garage, milk processing plant, quarry and saw-mill. All these help to improve the rural line load.

With increasing costs we must raise our sights to the point of securing an average annual revenue of $300 per mile to earn a better return on investments in such lines. Increasing costs of materials and increasing operating expenses

(*Continued on page* 291)

Possibilities of Accent Lighting As a Utility Lighting Sales Activity

A Report of the Commercial Lighting Committee, Commercial Sales Section, Commercial Division—B. J. Jensen, Public Service Electric & Gas Co., Newark, N. J., Chairman

THE war period has given the utility industry an opportunity to take stock of what has happened in the general acceptance of fluorescent light sources in the commercial lighting field, and to project the postwar effect on utility revenue of the transition to fluorescent lighting that is bound to continue. Many valuable surveys have been conducted and their findings analyzed. Considerable material of this nature has been made available to the industry. Most outstanding is the Report of the Commercial Planning Committee of the Edison Electric Institute on "Post-War Lighting Markets," August, 1945.

These studies have established that the revenue losses from conversion to fluorescent in the commercial field may in some cases be substantial, but that they can be overcome by conducting aggressive lighting sales programs on the part of the utilities. The necessity for aggressive action is evident from the facts established by these industry reports. Most significant is that in order to hold only the existing commercial loads in a conversion to fluorescent lighting, it will be necessary, on the average, to raise the commercial lighting levels to three times their present intensities. However, such an increase is not out of reason. Most commercial establishments are very much underlighted with their present incandescent systems and welcome an opportunity to step up their levels in line with better merchandising practices.

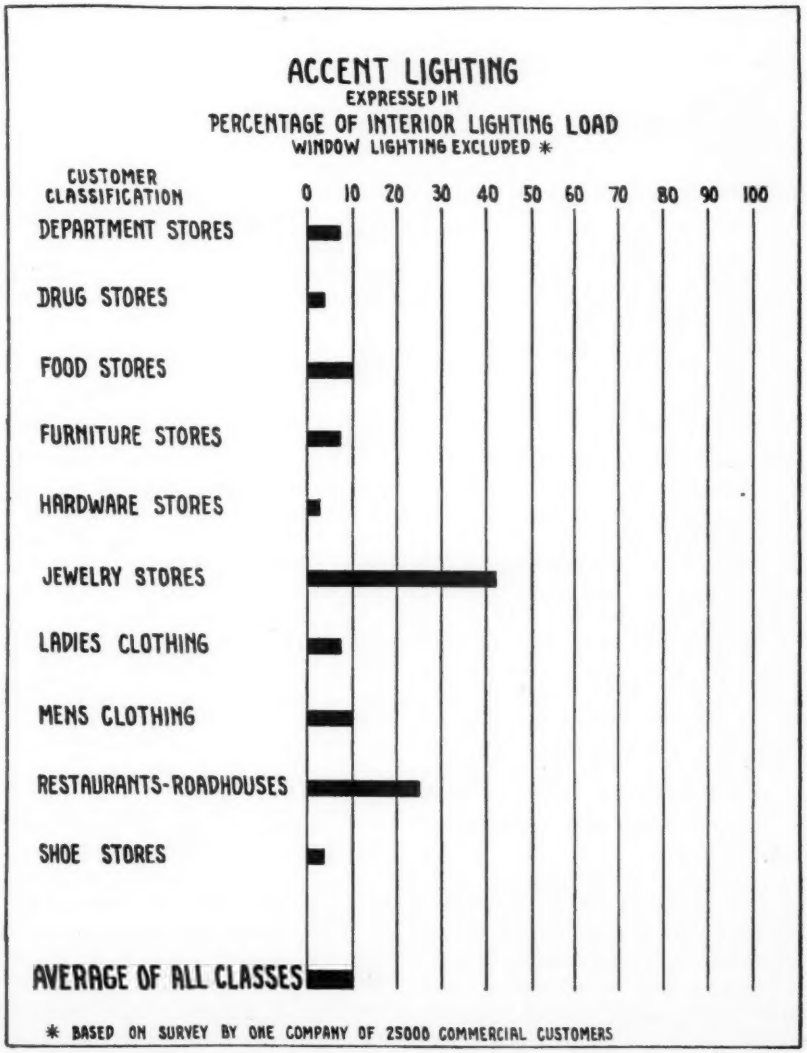
In view of these conditions, it is apparent that consideration must be given to any activity that will hold present loads and bring about the installation of new loads when in the best interests of the customer.

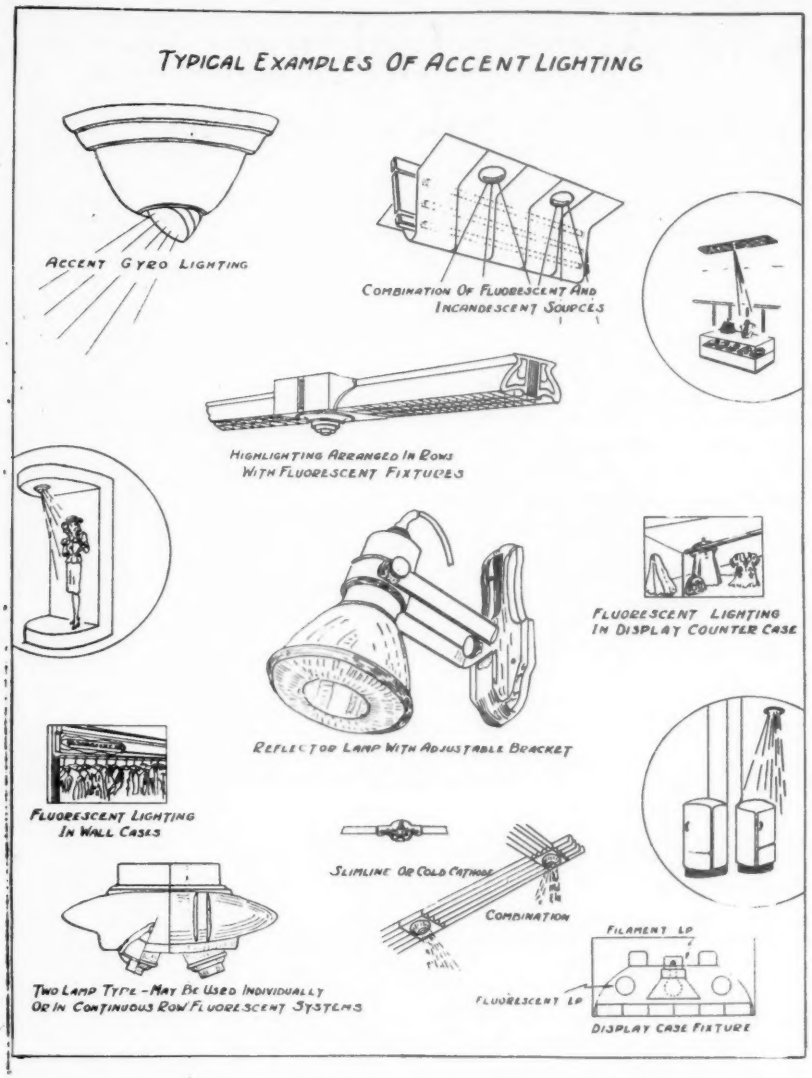
Accent Lighting as a Load Builder

The development of the Accent Lighting field affords one of the best opportunities in this direction. Accent lighting includes the illumination, from both fluorescent and incandescent sources, of counter and show cases, wall cases, specially built displays, decorative and architectural lighting such as coves, niches, supplementary overhead lighting for control of store traffic, lighting used for correction of color and quality, interior signs, etc. Consideration of this market for new lighting loads warranted a review of the present situation and past efforts in this direction, in order to appraise future opportunities in the accent lighting field.

Results of an Accent Lighting Survey

It was important to determine about what proportion of the total commercial lighting load was represented by accent lighting. In general, utilities do not classify it separately in their lighting sales reports and it is not segregated on the connected load records. It was helpful, however, to find a survey made by one company having 25,000 commercial customers, which segregated the accent lighting loads. In this case, it




TYPICAL EXAMPLES OF ACCENT LIGHTING
ACCENT GYRO LIGHTING
COMBINATION OF FLUORESCENT AND INCANDESCENT SOURCES
HIGHLIGHTING ARRANGED IN ROWS WITH FLUORESCENT FIXTURES
FLUORESCENT LIGHTING IN DISPLAY COUNTER CASE
REFLECTOR LAMP WITH ADJUSTABLE BRACKET
FLUORESCENT LIGHTING IN WALL CASES
SLIMLINE OR COLD CATHODE
COMBINATION
FILAMENT LP
FLUORESCENT LP
DISPLAY CASE FIXTURE
TWO LAMP TYPE - MAY BE USED INDIVIDUALLY OR IN CONTINUOUS ROW FLUORESCENT SYSTEMS

was found that accent lighting represents approximately 10 per cent of the interior lighting load, window lighting being excluded from the calculations, as well as such customers as schools, churches, and office buildings. It was interesting to note that this same survey indicated that the exterior sign load was also 10 per cent. This is quite surprising in view of the intensive promotion that has been devoted to the electrical advertising field in the past. The percentages of accent lighting to general overhead lighting for the various kinds of stores are shown in the chart on the preceding page.

The use of accent lighting varies among stores in the same kind of business from very little or none at all, to outstanding installations where the accent lighting may amount to even more than the general lighting load. In studying individual cases of stores where percentages of accent lighting were below average, it is found that 93 per cent of the lighting load was in standard store fixtures. In the case of stores where the accent lighting amounted to more than 40 per cent of the general lighting load, it was found:

1. That 65 per cent of these installations occurred on jobs where specializing architects or store equipment designers had been retained by the customer.
2. That 74 per cent of the accent lighting load consisted of lighting built into standard store equipment, ranging from counter scales to complete jobs of illuminated wall fixtures with built-in coves and lighted sign backgrounds.

Degree of Acceptance of Accent Lighting

It appears, therefore, that at present the commercial customers fall into three groups in their conception and use of accent lighting, namely:

1. A small group of leading merchandisers who recognize accent lighting as a necessary part of a complete lighting plan and are using considerable amounts of it. Every utility has been responsible for jobs of this type but, in the main, they are the product of professional designers or architects retained by the customer.
2. Customers who merely accept accent lighting and use it because it is incorporated in the store equipment that they buy. Normally, the utility salesman had little or nothing to do with this additional load.
3. The great majority of customers who give no recognition to accent lighting as a part of a complete lighting plan. The utilities must assume responsibility for this condition, principally because the lighting salesman has devoted his efforts to selling an adequate general lighting system while overlooking the possibilities of accent lighting.

This survey of the existing conditions in the field leads to the following conclusions:

1. That the existing accent lighting load is largely the result of practices well established and accepted on a nation-wide basis, and that without particular attention from utility sales representatives, some additional load can be expected from this source. This can be attributed mainly to the over-all sales efforts of the entire lighting and utility sales organization, but hardly to direct sales effort on the part of local utility lighting salesmen.
2. That a large potential accent lighting market exists in most kinds of commercial establishments and, if the possibilities of this market are to be fully developed, the job must be done by the lighting salesman on the ground.

Favorable Conditions for Selling Accent Lighting

Consideration of the present market shows that conditions are more favorable to accent lighting sales than they ever have been, because:

1. A general fluorescent lighting installation needs accenting at certain points to produce the best merchandising effect.
2. The color and specular qualities

of incandescent lighting are necessary to display certain types of merchandise properly when the general lighting system is fluorescent.

3. The architectural trend toward complete plate-glass fronts, which make the entire sales area a show window, demands a lighting treatment that will highlight certain merchandise and localize attention to an individual rather than a mass display.

4. There are outstanding examples of accent lighting already in use in most kinds of commercial establishments. These are of valuable assistance to a lighting salesman in pointing out the advantages to another prospect, particularly because in almost every case the establishments having good accent lighting installations are the leading merchandisers of their group.

5. There is a sales tool available that puts accent lighting in its simplest and most effective form. This is the reflector lamp, a self-contained flood or spotlighting unit, in the 150- to 300-watt sizes, priced under $1.50. It is small and easily installed. It can be carried by the lighting man to make "on the spot" demonstrations of the value of accent lighting. The majority of these calls will be made on the third group of customers who do not now recognize the value of this type of lighting. The salesman using small portable demonstrators, such as reflector lamps, has a sure means of gaining the customer's attention. Furthermore, the installation of one unit would add over 300 kwhr annually and go far toward paying for the sales call.

6. There is proof that other branches of the lighting industry are becoming interested in this field because:

   a. New accent lighting equipment is being announced by manufacturers of lamps, lighting devices, and special store fixtures. Typical examples of equipment for this purpose are illustrated in this report.

   b. Manufacturers' advertising is putting emphasis on accent lighting. Available direct-mail material is recognizing accent lighting as a component part of a lighting job and directing attention to it.

Summary and Conclusion

ACCENT LIGHTING HAS GREAT POSSIBILITIES FOR BUILDING NEW LOAD AND HOLDING PRESENT LOADS AT EXISTING LEVELS.

Present conditions of the market are favorable to immediate results. Therefore, it is important that Utility Sales Departments begin at once to:

1. Incorporate adequate accent lighting designs in every lighting plan submitted to the customer.
2. Develop their sales plans to use accent lighting as an entering wedge on "cold canvass" calls.
3. Promote accent lighting intensively with advertising and direct-mail activities.
4. Recognize and encourage the activities of organizations that have been making contributions to the field of accent lighting.

Abandonment of "Daylight Saving" Resulted in Use of 800,000,000 Kwhr More by Residential Electric Consumers Last Winter

THE return of the country to standard time last October enables us to make a comparison with the previous year and so to evaluate the effect of "daylight saving" on the use of electricity in the home. An analysis of the sales of "residential electric service" as reported by the Statistical Department of the Edison Electric Institute shows the following:

	Kwhr per Average Customer			*Increase*		*Average*	*Million Kwhr*
Month	1945	1944	*Total*	*Normal*	*D. L. S.*	*Number of Customers*	*Used Because No D. L. S.*
August	93.8	88.3	5.5	—	—	—	—
September	96.3	91.0	5.3	5.3	—	—	—
October	99.6*	93.3	6.3	5.6	0.7	27,994,000	20
November	107.9*	98.3	9.6	5.8	3.8	28,043,000	107
December	116.6*	105.8	10.8	6.1	4.7	28,086,000	132
	1946	1945					
January	129.8*	115.6	14.2	6.4	7.8	28,186,000	220
February	123.7*	110.8	12.9	6.6	6.3	28,324,000	178
March	115.4*	104.8	10.6	6.9	3.7	28,446,000	105
April	108.3*	99.4	8.9	7.1	1.8	28,576,000	51
May	103.9	96.5	7.4	7.4	—	28,775,000	—
Total					28.8		813

* No daylight saving in effect.

Senator Predicts National Socialism if Present Trend Continues

IT was proposed to Congress that the Federal Government build a new fertilizer plant at Mobile, Ala. Although Mobile is not within the territory of the TVA, it was nevertheless proposed that this plant should be operated by it.

In the debate which resulted in the elimination of this item from the budget, Senator George said:

"There is a shortage of fertilizer because the present factories and plants cannot be utilized, and therefore the Government must build another plant, take another taxpayer off the list, strip the Government more and more year by year of tax revenues, and strip the counties and the states also. If the Federal Government continues to move at the rate it is going, the time is near at hand when the great industries of this country will of necessity be federalized, because independent industries cannot compete with the Government and we will have a system of national socialism.

"Every time a Government factory is constructed to do what private enterprise can do, and is doing, it becomes more and more necessary for the Government to do the whole job."—*Senator George (Dem., Ga.) in the Congressional Record, June 29, 1946, p. 8054.*

A Practical Area Development Agreement Between Company and REA Coop

A PRACTICAL and really workable agreement between a business-operated electric service company and an REA cooperative was recently reached when The Washington Water Power, with headquarters in Spokane, Wash., joined in pledging cooperation for area development with the Inland Empire Rural Electrification, Inc., the largest REA cooperative in the Northwest.

Under the terms of the agreement, in its broadest interpretation, rural applicants in areas served by both Water Power and Inland Empire lines will be served by whichever of the two groups can make the necessary extensions with the least outlay of capital.

Methods of determining who will serve applicants is relatively simple. The organization receiving an application for service from a potential customer will make a survey to determine what other possible customers may be economically served along with the original applicants. This information will then be furnished to the other organization. Both service organizations will then estimate the cost of extending service to all of the prospective customers in the locality. The organization which can serve all of the prospective customers for the least cost will then have prior right to make the extension.

The agreement between the two agencies also covers the conditions under which customers can transfer from one organization's lines to the lines of the other agency, whether by the customer's request or otherwise.

Unusual in a society which must contend with varied and somewhat well defined attitudes is the fact that both service agencies have agreed to work for the best public good. The Washington Water Power Company for some time has followed a policy of area development. It is their logical assumption that if an area served by the company prospers, the company in turn will also prosper. And while few direct benefits may appear to follow an extension policy in which the company will voluntarily give up its claim to additional customers, company officials believe that if the public is given first consideration, satisfactory returns will accrue to the company in years to come.

A preliminary step to this working agreement between the Washington Water Power Company and the REA was a broad rural development program started by the company early this spring. A full-time farm development manager was appointed with assistants in each division assigned to the job of surveying the rural field and making recommendation. In March, a three-day conference was held, attended by company rural representatives, county extension agents and representatives of the REA, which was followed by short courses of instruction given by the two colleges in the area, Washington State College, and the University of Idaho. At this conference, and the subsequent sessions at the colleges, various groups participated, and the ground was cleared for a better understanding of the common problem. At no time was any disagreement seen regarding objectives, which meant providing the benefits of electric service to the greatest number of rural people possible.

Area served by the Washington Water Power Company, called The Inland Empire, embraces some 40,000 sq mi in Eastern Washington and the Idaho Panhandle. The company's lines reach from almost Canada on the north, 200 miles south to Grangeville, Idaho, and from Wallace and the Coeur d'Alene mines on the east, 235 miles to Chelan on the west. Roughly, the area served is 10 times the size of Rhode Island, with half the population of that state.

During the second World War, all agencies supplying electricity in that area interconnected their lines to assist in the war program. This interconnection included seven business-managed companies, two municipal power systems and two Federal power projects, and was known as the Northwest Power Pool. As part of the general agreement, the Washington Water Power Company "wheeled" power from the Federal projects to the REA's, and it was a sound conclusion when the war ended that if several agencies could work together for military purposes, these same agencies could work together in time of peace. With war materials no longer a major problem, the REA and the Water Power turned attention to the problem of expanding facilities to serve the rapidly growing Northwest.

"All agencies must cooperate in building for the future in peace as we did for war purposes," said W. L. Thrailkill, assistant general manager of the Water Power, who conferred with REA officials to discover a practical basis for working together. Both agencies are obviously satisfied with the present arrangement. Said D. I. Hopkins, president of the Inland Empire Cooperative, "the same system worked out well during the war, when materials were scarce, and the savings, which can be passed on to the customers of both systems, are obvious. We decided to continue the arrangement to avoid controversy and costly duplication of facilities."

"We are pleased that it has been completed," Mr. Thrailkill observed. "Similar agreements are being discussed with seven other REAs in the territory adjacent to the company's lines, and it is expected that upon the completion of all of these pending agreements, a cooperative program for developing an expanded use of electricity in agricultural areas will be undertaken. By working together in this manner, the solution to many problems facing the farmer will be solved, with benefits to all."

G.E. Lighting Institute Will Reopen on Sept. 9

FORMAL reopening of the General Electric Lighting Institute at Nela Park, Cleveland, which was closed during the war, has been set for the week of Sept. 9. Changes have been made not only in the physical structures but also in the displays and demonstrations. The Institute has been completely rebuilt to serve both present and future needs of the G E Lamp Department.

The Institute will have all needed facilities to present the story of modern electric lighting and its proper use, domestically, commercially, and industrially.

Finding Out What People Think of a Public Utility Service

Carefully Conducted Attitude Surveys, Using Scientific Methods, Reveal Useful Facts About Customers' Opinions of Telephone Service and the Telephone Company

By Arthur H. Richardson and C. Theodore Smith

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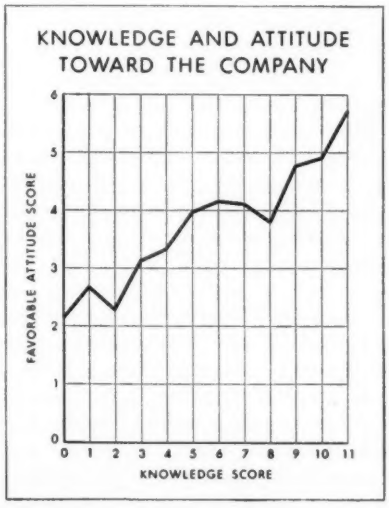
THE Bell Telephone System now handles about thirty *billion* telephone calls a year. It sends out millions of bills; its installers and repairmen make millions of visits to customers' premises; and there are innumerable other contacts between the public and the System's operating companies. Add them all up, and you will have some idea of the number of occasions which the public has for forming impressions of telephone service and of the companies which furnish it.

For many years the Bell System has been using various ways of finding out what those impressions are. The continuous service-measurement plans of the departments, and the many contacts which employees have with users of the service, give a fairly good indication of how successful each Associated Company is in giving people the kind of service they want. And voluntary comments of customers, in person, over the telephone, by letter, supplement this information.

But there are many millions of telephone users whom the country seldom or never sees or hears from; and the great majority of people do not indicate what they think unless they are asked. To get the views of both the articulate and the inarticulate, and to cover subjects on which they are not likely to volunteer an expression of opinion, the System is making increasing use of opinion surveys. In these studies it finds out what people are thinking by going directly to them with questions; and by carefully selecting a relatively small sample of customers for questioning, a reliable indication can be obtained of the opinions held by the whole group under study.

The first organized customer opinion survey in the Bell System was made in Detroit toward the end of 1925. It was conducted by J. D. Houser and Associates, one of the pioneer firms engaged in measuring attitudes. Many of the methods employed, which have since had widespread use in other Bell System studies, were developed by Dr. Raymond Franzen, who was then a member of the Houser organization and with whom the A. T. & T. Co. has since maintained a consulting arrangement.

In 1929, subsequent to a Houser survery of the effectiveness of American Telephone and Telegraph Company advertising, made in Pittsburgh, a unit was set up in the Chief Statistician's Division of A. T. & T. to determine possible applications of opinion survey techniques to problems in the Bell System. Since that time this unit has been engaged in developing methods and in assisting the Associated Companies to conduct surveys, and has prepared numerous reports based on the findings of studies made in conjunction with the companies.



The more people know about the business, the more favorable is their attitude toward it.

During the 20 years that opinion surveys have been made in the Bell System, the views of more than 500,000 people (representative of many millions) have been obtained on many different subjects in hundreds of studies carried out in many different cities, towns, and rural communities over the country. For the most part, these studies have been conducted by the telephone companies themselves, as early experience indicated that is was possible for company representatives to obtain from the public full and frank expressions of opinion regarding telephone service and other phases of the business.

The opinion surveys have varied widely in scope and purpose; but all have aimed to contribute facts about customer opinions needed to arrive at sound solutions of problems in which attitudes of our customers or of the public generally were involved. For example, surveys have been useful:

In finding out which specific aspects of telephone service the user feels most need improvement.

In measuring customer satisfaction with service in small offices where service measurements are not normally made.

In determining telephone service requirements of people living in rural areas.

In determining marketing habits of housewives, as a basis for promoting use of the telephone for shopping.

In determining the needs, attitudes, and expectations of applicants who are waiting for telephone service.

In deciding what improvements in pay station facilities are most desired by users.

In considering possible revisions of telephone exchange boundaries.

In revising the form of telephone bills to increase their clarity.

In determining how telephone directories may be improved to facilitate reference and to increase use.

In determining the most effective placement of advertising in daily newspapers.

In determining the size of audience of telephone company radio programs.

In determining the effectiveness of various campaigns to promote toll usage.

It was recognized from the start of the activity that the study of opinions and attitudes was not a simple undertaking. In dealing with intangibles of this character, it was apparent that a good deal of experimenting with methods would have to be done if sound conclusions were to be reached. The measurement of public attitude was a new field, and at the outset little guidance could be obtained from outside sources. So the early studies made in the Bell System were looked on as primarily experimental, and procedures were thoroughly tested to determine those which seemed to give the most reliable results. In this experimental work the Associated Companies cooperated, and they have contributed materially to the development of methods and procedures.

At the beginning of the survey activity it was feared that there might be some unfavorable reaction on the part of our customers and the public generally. However, the general experience has been that the public does not object to being questioned, but, on the contrary, is very willing to answer questions about telephone service and the telephone company. Apparently, people appreciate the interest shown by the company in soliciting their views, and it is now generally recognized that the survey activity has a definite customer relations value.

It is important, of course, that the procedures followed in obtaining the necessary information from people should not annoy or irritate them; for, in addition to the effect on customer relations, this could lead to inaccuracies in survey results. To avoid any possibility of such reaction, special care should be exercised in planning and conducting each study.

How Surveys Are Made

In setting up an opinion survey, the first essential, as in the case of most other scientific inquiries, is a clear-cut definition of objectives: specifically, what the problem is, what information is needed in connection with the problem, and along what lines the inquiry should be directed to obtain results which will have practical application. The actual steps followed will vary from study to study, but there are certain fundamental procedures common to most opinion surveys. These include:

Developing the Questionnaire

Selecting the Sample

Getting the Information

Analyzing the Results

Developing the Questionnaire

Most Bell System attitude surveys are conducted on a questionnaire basis, in which each individual in the sample is asked a prepared list of questions. This assures that all pertinent aspects of a subject will be covered with each person. Moreover, definite response categories are provided for most questions, which makes possible the statistical analysis of results. This does not prevent free expression of opinion, however, and space is always provided on questionnaires for customer comments.

The preparation of the questionnaire is one of the most exacting phases of the whole survey activity. There are few definite rules which can be laid down in framing the questions—for this depends on judgment, and on experience as to what has proved productive and what has not. There are, of course, certain general principles which should be observed, such as avoidance of words which may mean different things to different people, and of leading questions and of questions which might cause people to "cover up."

It is customary on a new project to conduct a small-scale "pilot" study before proceeding with the survey proper. This provides an opportunity to experiment with introductions, question wordings, order of questions, and any special or unusual procedures which it may be desirable to try out.

Selecting the Sample

Almost all opinion studies are conducted on a sampling basis; that is a cross-section is selected in such a way as to represent in miniature the total group of people whose views are desired. But to secure an accurate cross-section picture, the procedure used in selecting the individuals who are to comprise the sample is of first importance.

Methods of sample selection vary, depending on such factors as the characteristics of the group to be studied and on the avaliability of information regarding this group. In telephone company surveys of subscribers, sampling is greatly simplified because the names and addresses of all of our customers are listed in telephone directories and elsewhere in company records. These lists provide an excellent basis for sampling, since they made it possible to use a "random" method of selection.

To illustrate one of the simpler applications of this procedure: suppose it were desired to conduct a survey by telephone in which some 500 residence customers were to be chosen as a sample of all residence subscribers in some particular city or town. The telephone directory for the community would be divided into 500 equal sections. Interviewers might be instructed to obtain an interview with the first available residence subscriber in each of the 500 sections.

If the study were to be made on the basis of visits to the premises, a smaller number of so-called "interviewing spots" might be selected at random and a group of interviews obtained in each, thus reducing the amount of travel involved.

While the random method of sample selection might appear haphazard and unorganized, actually it follows certain fundamental mathematical laws. The reliability of this method in telephone company surveys is evident when comparisons are made of the known characteristics of the whole group with similar distributions for the sample.

As to the size of the sample necessary for a given study, a number of factors are controlling. All samples are subject to a certain amount of "error"; that is, results will differ somewhat from those that would have been obtained had the total group been covered. Assuming that the sample has been properly selected, the extent of the error depends on the size of the sample: the greater the accuracy desired, the larger the sample must be. Also, of course, the greater the number of sub-group comparisons to be made, the larger the sample must be.

It is surprising to many that the actual size of the total group from which a cross-section is to be taken has relatively little to do with the number of interviews required. Of more importance is the degree of homogeneity in the group being studied. Where there is little uniformity of opinion in the group, more interviews are necessary to achieve a

given degree of accuracy than where people's opinions tend to be similar.

Getting the Information

There are various ways of obtaining attitude information from the public. Each has its advantages and disadvantages, and the procedure used for any specific survey would be the one which would provide the most reliable and useful results in connection with the problem at hand.

Face-to-Face Interviews have been used in conducting many Bell System surveys. While this method is relatively time-consuming, it has particular advantages where a new problem is being explored, where many questions are to be asked, where the questions are on subjects unfamiliar to the customer, or where it is necessary that the questions be answered in definite order.

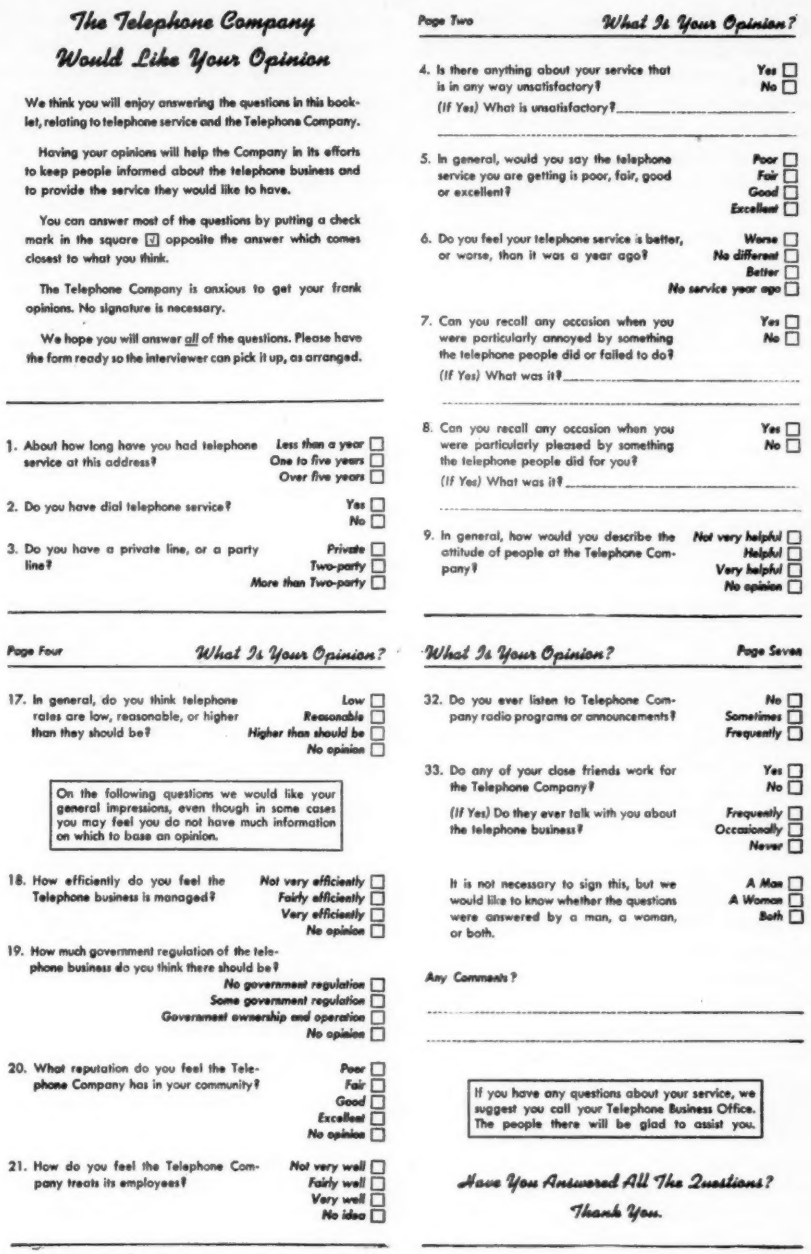
Face-to-face interviews must be made, of course, where observation of the premises is necessary to get data on economic status or to observe telephone facilities; or where, as a part of an interview, it is desired to show advertisements or check lists, or to ask the customer to perform some operation such as to look up telephone numbers or to dial a call.

One of the more difficult aspects of the face-to-face interview is the proper recording of answers and comments without interfering with the conduct of the interview. No attempt is made to conceal the questionnaire form, and responses and comments are recorded as the interview proceeds. Experience has been that people not only do not mind having their answers written down but, as a matter of fact, seem to feel that it is the logical thing for the interviewer to do.

Telephone Interviews have been used extensively, particularly for studies of attitude toward telephone service. Customers seem to feel it is appropriate for the company to use the telephone in interviewing them about their service. Telephone interviews are less time-consuming and less expensive than premise interviews, and can be supervised much more closely. While the telephone interview has many of the advantages of the premise interview, it must be relatively short and the questions must be of a type which people can answer readily.

In surveys involving either face-to-face or telephone interviewing, proper handling of the interview is of crucial importance and requires training, skill, and experience. In the introduction to the interview, the purpose of the survey is explained to the person, and the company's interest in getting a frank expression of opinion is emphasized. Every precaution is taken to insure that answers will not be influenced in any way; naturally, interviewers refrain from expressing their own opinions, and questions raised by the person being interviewed are usually deferred for answer until the end of the interview.

In contrast to interviews where questionnaires are filled out by an interviewer, there are other procedures whereby customers fill out the questionnaires themselves. For example, questionnaires have been left at pay stations, and have been given out at business offices, at telephone company "open houses," at telephone exhibits and demonstrations. However, in most Bell System studies where the customer fills out the questionnaire, the practice is either to send it to him through the mails or to employ the "leave-and-pick-up" procedure.



The Telephone Company Would Like Your Opinion

We think you will enjoy answering the questions in this booklet, relating to telephone service and the Telephone Company.

Having your opinions will help the Company in its efforts to keep people informed about the telephone business and to provide the service they would like to have.

You can answer most of the questions by putting a check mark in the square ☑ opposite the answer which comes closest to what you think.

The Telephone Company is anxious to get your frank opinions. No signature is necessary.

We hope you will answer all of the questions. Please have the form ready so the interviewer can pick it up, as arranged.

1. About how long have you had telephone service at this address? — Less than a year ☐ One to five years ☐ Over five years ☐
2. Do you have dial telephone service? — Yes ☐ No ☐
3. Do you have a private line, or a party line? — Private ☐ Two-party ☐ More than Two-party ☐

Page Two — What Is Your Opinion?

4. Is there anything about your service that is in any way unsatisfactory? — Yes ☐ No ☐
   (If Yes) What is unsatisfactory? _____
5. In general, would you say the telephone service you are getting is poor, fair, good or excellent? — Poor ☐ Fair ☐ Good ☐ Excellent ☐
6. Do you feel your telephone service is better, or worse, than it was a year ago? — Worse ☐ No different ☐ Better ☐ No service year ago ☐
7. Can you recall any occasion when you were particularly annoyed by something the telephone people did or failed to do? — Yes ☐ No ☐
   (If Yes) What was it? _____
8. Can you recall any occasion when you were particularly pleased by something the telephone people did for you? — Yes ☐ No ☐
   (If Yes) What was it? _____
9. In general, how would you describe the attitude of people at the Telephone Company? — Not very helpful ☐ Helpful ☐ Very helpful ☐ No opinion ☐

Page Four — What Is Your Opinion?

17. In general, do you think telephone rates are low, reasonable, or higher than they should be? — Low ☐ Reasonable ☐ Higher than should be ☐ No opinion ☐

On the following questions we would like your general impressions, even though in some cases you may feel you do not have much information on which to base an opinion.

18. How efficiently do you feel the Telephone business is managed? — Not very efficiently ☐ Fairly efficiently ☐ Very efficiently ☐ No opinion ☐
19. How much government regulation of the telephone business do you think there should be? — No government regulation ☐ Some government regulation ☐ Government ownership and operation ☐ No opinion ☐
20. What reputation do you feel the Telephone Company has in your community? — Poor ☐ Fair ☐ Good ☐ Excellent ☐ No opinion ☐
21. How do you feel the Telephone Company treats its employees? — Not very well ☐ Fairly well ☐ Very well ☐ No idea ☐

What Is Your Opinion? — Page Seven

32. Do you ever listen to Telephone Company radio programs or announcements? — No ☐ Sometimes ☐ Frequently ☐
33. Do any of your close friends work for the Telephone Company? — Yes ☐ No ☐
    (If Yes) Do they ever talk with you about the telephone business? — Frequently ☐ Occasionally ☐ Never ☐
    It is not necessary to sign this, but we would like to know whether the questions were answered by a man, a woman, or both. — A Man ☐ A Woman ☐ Both ☐

Any Comments? _____

If you have any questions about your service, we suggest you call your Telephone Business Office. The people there will be glad to assist you.

Have You Answered All The Questions?
Thank You.

What is a telephone company questionnaire like? Here are four pages from one which was used in a nation-wide survey of customer opinion.

Mailed Questionnaires have been used to advantage especially in connection with subjects which have previously been explored rather thoroughly in personal interviews. Studies conducted on this basis can be administered from a central point, and are particularly advantageous where people from whom information is wanted are widely scattered or where "family" expressions of opinion are desired.

In using the mailed questionnaire method, the possibility must always be reckoned with that people who fill in and return questionnaires may differ from those who do not. Accordingly, in order to minimize any effect which such differences may have on the results, special effort is always directed toward getting a high return. If the subject is of interest, if the questions are not too difficult, and if the approach and follow-up are well planned, a satisfactory return of completed questionnaires can usually be obtained.

The "Leave-and-Pick-Up" Method is a relatively new development in System studies. In this procedure a questionnaire is left with the customer to fill out; and later on, the same day or the next morning it is picked up. The method was first tried out in a survey in Rochester, Minn., early in 1943.

This method, as compared with face-to-face or telephone interviews, materially speeds up the field work, because the interviewer does not have to wait while the questions are being answered. Since the individual reads the questions himself and records his own responses, any influence which interviewers might have on results is largely eliminated. Moreover, it is possible to conduct the surveys with a less skilled field force than where interviews are involved.

Little difficulty is experienced in getting people to fill in the questionnaires; and most of those who agree to fill them in, do so. The fact that the questionnaire is delivered by a representative of the company preserves some of the values of personal contact of the face-to-face interview. The customer can fill out the questionnaire at his convenience; and since it is left outside when completed, the person is called to the door but once. Help of other members of the family in filling out the questionnaire can be secured if necessary.

Analyzing Results

In summarizing the results of a survey, machine tabulating methods are almost always used. This usually involves "coding" the questionnaires: that is translating the responses to the questions into numerical codes. When coded, the questionnaires are given to a punch card operator who perforates tabulating cards according to the codes shown. A separate card is prepared for each questionnaire and the cards are then run through sorting or tabulating machines which provide a record of the responses to each question.

These responses, expressed in percentage form, are generally significant in themselves. They gain added meaning, however, when comparisons can be made, for example, between different groups—such as dial and manual customers, individual and party line customers, and so on. Or the results in some specific locality may be compared with other places, with "company" figures, or with "Bell System" totals. Particularly enlightening are trend comparisons, where results are compared with those of previous studies made in the same locality.

Another method of analyzing results is by studying the way in which answers to various questions are interrelated. To illustrate: in recent surveys in rural areas each customer interviewed was asked whether he would be interested in "semi-selective" ringing — an arrangement whereby each customer hears the rings of only one other party on the line. Elsewhere in the questionnaire he was asked whether he objected to others "listening in" on the line. By relating the answers to these two questions, it was found that people who objected to listening in were much more interested in the new ringing arrangement than those who did not. This provided a pretty clear indication that one reason for interest in this type of ringing was a feeling that less listening in would result.

Through this "indirect method" of analysis, it is often possible to obtain indications of the reasons which lie behind things people think or do. This is particularly important where reasons are of the type which people might tend to cover up if questioned about directly; or where motives are involved which individuals may not be too well aware of themselves.

In addition to determining specific relationships, it is also frequently desired to investigate relationships of a more general character—and in these cases "scoring" procedures are usually employed.

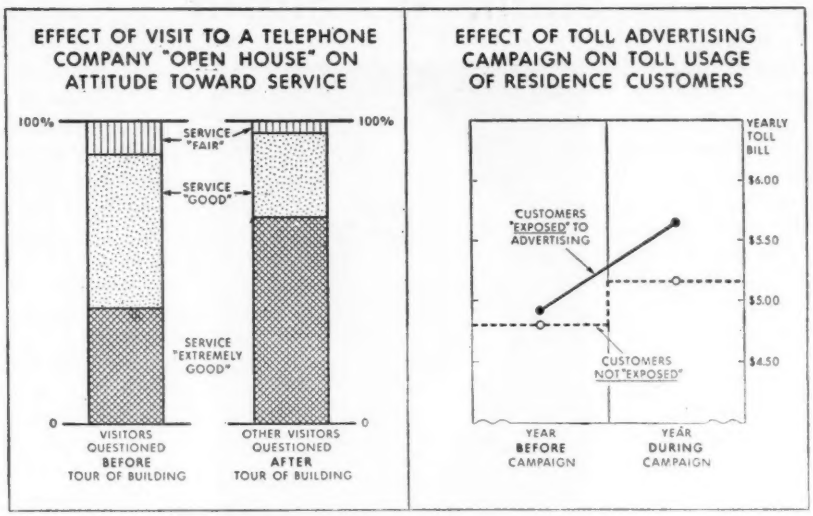
In one survey, for example, it was desired to find out the extent to which people's knowledge of the business seemed to affect their attitude toward it. In this study, the extent of the individual's knowledge of the telephone business was determined by using a series, or "battery," of questions; and on the basis of responses to these questions, each individual was assigned a "knowledge" score. General attitude toward the company was measured by another battery of questions, and each individual received an "attitude" score. When knowledge scores were related to attitude scores, it was found that the higher the individual's knowledge rating, the higher his attitude rating tended to be; indicating that the more people know about the telephone company, the better they feel toward it.

Another use for the scoring technique is in determining the public relations significance of difficulties people may have with telephone service—such, for example, as slow dial tone or wrong numbers. In the case of each difficulty, it is essential to know at least two things: first, the number of people who have experienced it; and, second, how much difference it makes to the individual when it does occur. The first figure is simply a matter of counting people. The second is arrived at by comparing the attitudes of people who have and who have not had the difficulty, as measured by a score based on a battery of general service attitude questions. Where the attitude of the people experiencing the difficulty is substantially less favorable than the attitude of the group not affected, it seems reasonable to assume that the trouble is an irritating one; where the difference is small, not so irritating.

It is particularly important that the basic plan of analysis of each attitude survey be determined upon at the outset, for this affects every phase of the study—the field to be covered by the questions, the exact form the questions are to take, the procedure to be followed in obtaining the answers, and the methods to be used in summarizing and analyzing results.

Looking Ahead

In recent years various studies have been undertaken on a System basis in which most of the companies have participated. During the war period, for example, surveys of the opinions of applicants who had to wait for service were made by almost all of the companies, and most of them also conducted opinion studies among rural telephone sub-



How surveys were used to determine the effectiveness of two specific public relations activities. Left, people's opinion of the quality of their telephone service improved after a visit to a central office. Right, the toll bills of people "exposed" to advertising increased more than did the bills of people who had not seen the advertising.

scribers. Some of the companies are making surveys to determine the service needs of non-subscribers in rural areas. Others have inaugurated *continuing* studies of attitudes of their customers toward telephone service.

These surveys and others have demonstrated the value of a coordinated research program. And it must be borne in mind that the success of such a program depends in large measure on the extent to which an effort is made by management and by supervisory people to determine how the findings of attitude surveys may be used to greatest advantage in helping to solve the problems of the business.

Research of the type described in this article can be of particular value at a time when new problems are arising and previously established precedents no longer seem to apply. Looking ahead, many changes in operating methods can be expected—changes which will affect directly millions of telephone users. Public opinion is in a constant state of flux; changes in opinion seem to be occurring at an accelerated rate, and this may be expected to create many new customer and public-relations problems.

The fact that the Bell System is entrusted with supplying telephone service to the great majority of the people in this country places large responsibilities on its Associated Companies. Since telephone service is an essential service, the public has an important stake in the welfare of the telephone business, and should be interested in many of its problems. For example, the public is directly concerned with the adequacy of telephone company earnings if the service is to continue to expand and improve.

In promoting mutual understanding, a continuous inward flow of information from the public seems essential. In order that the System may be assured of keeping abreast of changes in public thinking, a project has recently been inaugurated which calls for periodic soundings, on a nation-wide basis, of public opinion toward the telephone business.

Equally important, of course, is the outward flow of information from the company to the public. Every year the Bell System devotes a considerable amount of effort and money to keeping the public informed about the telephone business. Many different methods are employed to reach the public with our messages. If our informative activities are to be along the most productive lines, we need information regarding the public's reaction to them, and all the evidence obtainable as to their effectiveness.

The reputation of the telephone company as a business organization is determined primarily by the quality of its service and by the skill and understanding used in its day-to-day contacts with the public. If the telephone companies are to provide good service, they must know what the user expects in the way of service, and what he likes and does not like about the service he is getting. One of the most important functions of the research activity should be to supplement the present internal measurements and indexes by providing continuing measurements of the quality of service from the public's point of view.

In dealing with the many problems of human relations which characterize the telephone business, there is obviously no substitute for sound judgment on the part of management. But the more facts management can command, the better that judgment will be.

There is probably no business in the country more adequately equipped than ours with accounting, statistical, and engineering records on which to base operations. There is probably no business where progress has been more dependent upon factual knowledge developed through technological research. And there is every reason to believe that facts regarding the many human—and hence intangible—aspects of our business can be made available through the application of the research technique; the same systematic, painstaking method of inquiry which has brought the physical facilities for telephone communication to their present high state of development.

Frank W. Smith

FRANK WHITNEY SMITH died at his home in New York, July 22, at the age of 79.

At the time of his retirement nine years ago, Mr. Smith had devoted 57 years of an extraordinary useful life to the electric industry. He began work in 1880 at the age of 13 as an office boy with a small arc lighting establishment and retired in 1937 from the presidency of the world's largest electric operating company.

Mr. Smith was born in Alden, Erie County, New York, June 22, 1867, of Revolutionary War stock. His great-great-grandfather was Col. Samuel Drake, who served through the Revolutionary War in the Third New York Westchester Regiment. His first ancestor in this country was Lieut. Joseph Drake who died in 1731 and was buried in St. Paul's Churchyard in Eastchester, Westchester County. These Drakes were descendants of Sir Francis Drake, the English navigator and explorer.

Coming to New York as a child, where he attended public school, he made his debut in January, 1880, into the business world as an office boy in the employ of the United States Illuminating Company. This was nearly three years before Thomas A. Edison opened in New York City the Pearl Street generating station, which began the central station electric service that the world knows today. The United States Illuminating Company which subsequently became part of the United Electric Light and Power Company, was one of the earliest arc lighting organizations.

Three years later, when he was 16, he was made a general clerk. He held this job until 1889, when his company was merged into the newly formed United Electric Light and Power Company. The young man was then appointed paymaster of the new company, and he held this post until 1891, when, at the age of 24, he became assistant auditor. Eight years later, in 1899, he was made assistant secretary of the United, and secretary of the Brush Electric Illuminating Company, another of the early arc light concerns. He became secretary of the United in 1905, and seven years later, in 1912, he was elected vice-president, and in 1916 vice-president and general manager.

The organization of the United Electric Light and Power Company, first

under the name of the Safety Electric Light and Power Company, was for the express purpose of developing the alternating current system, which was brought to the attention of George W. Westinghouse in 1887 and its adoption thereafter promoted by the Westinghouse Company. Prior to that time the United States Company did a limited business in the distribution of electricity for incandescent lighting with the series multiple system. The company wired and equipped many of the early hotels and other establishments for this system, which was subsequently superseded by the alternating current system. Mr. Smith, therefore, was directly and actively identified with the entire period of the alternating current system, and in later years had much to do with its development. The United Company was a pioneer in developing the automatic network distribution system.

Mr. Smith became a vice-president of the New York Edison Company in 1931, and in January, 1932, he was elected president of both that company and the United. In 1935 Mr. Smith became president of the Consolidated Gas Company of New York, the Brooklyn Edison Company and the New York and Queens Electric Light and Power Company. He became president in 1936 of the Consolidated Edison Company of New York, into which most of the electric and gas subsidiaries of the system had been merged.

Mr. Smith also served for many years as a director of the various companies now comprising the Consolidated Edison System; Brooklyn Edison, New York and Queens Electric Light and Power, Westchester Lighting, Yonkers Electric Light and Power, Consolidated Telegraph and Electrical Subway Companies and the New York Steam and Tarrytown Terminal Corporations. He was a trustee of Consolidated Edison until the year before he died.

While he was thus closely identified with the formation and growth of the electric industry in his home town, Mr. Smith also gave exceedingly generously to the nation-wide development of the industry through his services to the National Electric Light Association, and later the Edison Electric Institute.

At the time of his retirement he was a member of the board of trustees of the Edison Electric Institute, a member of the membership committee, and chairman of the Institute's Prize Awards Committee. In 1919 Mr. Smith was elected vice-president, and in 1922 president of the National Electric Light Association. During his term the work of the association was considerably expanded and he had much to do with the formation and organization of the Geographic Sections. During that year he traveled some 30,000 miles in behalf of the association, which at that time was a record. Earlier he had served as treasurer of the association.

He also served for varying terms as chairman or member of some 11 committees of NELA during a period continuous since 1906 until the dissolution of that organization in 1933. These committees included Membership Dues, Lamp Rate Research, Electric Vehicle, Executive, Constitution and By-Laws, Insurance, Employee Relations with the Public, Public Policy, National Executive, Codes and Standards, and Prize Awards.

In its early days, Mr. Smith was also actively connected with the Electric Vehicle Association of America and in 1923 was its president. Mr. Smith was a member of the American Institute of Electrical Engineers, Electrical Association of New York, New York Electrical Society, Engineer's Club, and several other business and social clubs, as well as many technical and general organizations.

Better Light and Better Sight Through Teaching

By Russell C. Putnam

Associate Professor, Case School of Applied Science, Cleveland, Ohio—Consultant, Engineering Division—Lamp Department, General Electric Company, Nela Park, Cleveland, Ohio

Presented before EEI Annual Sales Conference, Chicago, April 4, 1946

TEACHERS, school executives and the electrical industry have an unusual opportunity and a grave responsibility at the present time. The opportunity comes from the general acceptance that there is much that is new in lighting and that it would be worthwhile to learn more about the subject. The responsibility of giving the correct information and presenting it in the right way is all the greater because of this opportunity.

The new light sources, such as the fluorescent lamp, have created an interest and a curiosity as to the possibilities of their use for better lighting and for better seeing. The experience of industry with better lighting in offices and war plants is before us. There is a better appreciation than ever before of the benefits of good lighting. We may build on this interest in many ways—through education, by example, and with engineering advice. It is our responsibility to see that the teaching and the advice are sound.

An analysis of the 1940 census of the United States shows that 22.6 per cent of the total population of the country are pupils in schools, colleges or universities. There were, in 1940, over 21 million in kindergarten and elementary schools, over 7 million in high schools, and approximately 1,500,000 in colleges and universities, giving a total of more than 29,650,000 students. Add to that more than 875,000 teachers, and the total number actively engaged in school work reaches a figure of more than 30,525,000. This is a very important segment of our population—important not only because of numbers, but also because of their influence on the rest of our population. If we consider also that these 30,000,000 work in a physical plant of approximately 1,000,000 classrooms and laboratories, involving approximately 750,000,000 sq ft of floor space, we realize that education in this country is big business in itself. Important as it is in our everyday life, its influence on the future life and position of our nation is beyond calculation.

These children are our future citizens and leaders. They deserve the best education that we can give them, under the best conditions. They have so much to learn—citizenship, proper living—so many things in addition to scholarship. They are susceptible to the mood which may be set up by their school surroundings. Light and color can help greatly in establishing a pleasant, cheerful, comfortable, efficient environment which will go a long way in establishing the right psychological attitudes.

Understanding Good Lighting

The importance of an understanding of what constitutes good lighting, and how good lighting effects health and efficiency, is recognized. Much thought has been given to plans for introducing these principles into the educational programs of the schools. Some excellent work has been done along these lines, and those who have been instrumental in its development should be congratulated. They have studied the problems intelligently and have splendid suggestions for introducing the many aspects of the subject throughout the elementary and secondary school courses. I refer particularly to the work being done by the Research Division of the National Education Association in preparing a booklet for the use of teachers and school administrators, which I understand will be available in the near future.

This booklet covers the fundamental knowledge of light and sight which the elementary and secondary schools may desire to present to their students. It contains valuable suggestions for curriculum topics, methods and devices for effective teaching as well as specific educational activities. The public utilities, electrical manufacturers and others interested in better light and better sight could be of great help in this program by their cooperation, encouragement and aid with demonstrations, slides, motion pictures, and other visual aids for graphic presentation.

This program of the National Education Association is designed for the teaching of the 28,000,000 pupils in grade and high schools. Although this is many times larger than the number attending college, the latter are important, also, particularly those studying engineering, architecture, home economics, and similar courses. Very few colleges and universities give any appreciable amount of instruction in the principles of light and seeing, although such work would be a valuable addition to the training for the previously mentioned professions. There is a large and almost untouched opportunity here to be of great influence on the men and women who will soon be leaders in industry and education.

I take some pride in teaching Illuminating Engineering in an engineering college where the subject has been a required part of the electrical engineering curriculum for the past 42 consecutive years, but I do not know of any other college which can even approach this record of continuous instruction. As a matter of fact, very few colleges and universities include studies in lighting in even the electrical engineering curriculum at the present time. Since electrical engineering is the engineering of electro magnetic phenomena and since light and the adjacent infra-red and ultra-violet regions are an important part of electromagnetic radiation, some consideration should be given these subjects in order to make an electrical engineering course complete.

A study of light, lighting and the principles of seeing is also of real importance to students of architecture, while the application of the same fundamentals to home lighting is certainly of definite value in the study of home economics.

If the electrical and public utility industries wish to aid in this work, and they could be of great help indeed, the

right attitude is all important. They must understand the aims of the curriculum and cooperate with an intelligent understanding of the teachers' point of view, as has been done very successfully in a number of cases.

Look to the Schoolroom

Admirable as this work is, something additional should be done. The more students and teachers know about good lighting, eyesight conservation and the easing of visual tasks, and the more they understand what constitutes good lighting, the more critically they look at the lighting in their own workplace—the schoolroom.

With a national average of only about 7 footcandles, with bare lamps or other glaring light sources all too common throughout the country, the average schoolroom lags far behind our knowledge and ability in both the quantity and the quality of lighting. The great majority of schoolrooms are almost equally deficient in the other aspects of good seeing. If charity begins at home, surely the teaching of better light and better sight should be carried on under conditions which illustrate these principles, rather than under conditions which might well be called horrible examples of what not to do.

Seeing and education are partners. Our educational system is built on seeing. We have only to think of the difficulty in teaching visually handicapped children to realize how much we depend on eyes and seeing in education. By far the greatest percentage of impressions reaching the brain come from the seeing process. Anything which improves the ease, the accuracy and the comfort of seeing, helps teaching.

Children Use Eyes More

School tasks are more severe today, and of longer duration, than formerly. Charles D. Gibson, of the California State Dept. of Education, tells us that children read at least three times as much today as did children of the same ages a few years ago. Reading activities of one kind or another take up a large portion of the time of the school child today, and reading is one of the most critical seeing tasks which the normal person performs. There is more tendency among educators, also, to combine subjects into longer blocks of time than under former teaching methods. Altogether there is more tendency to eyestrain and to fatigue.

This question of fatigue is important and is one of the best reasons for adequate lighting. Charles Sheard, Ph.D., of the Mayo Foundation, Rochester, Minn., says in this connection, "Even under adequate lighting, and with normal vision, it has been estimated that there is a consumption of a quarter of the bodily energy in the processes of seeing. When vision is normal, the ease of seeing is controlled almost entirely by sufficient and proper lighting. However, when the illumination is improper or inadequate, and when the vision is poor, then the consumption of bodily energy is increased above the usual necessary amount. Poor vision causes uncertainty, tension, annoyance and distraction, and these in turn result in increased expenditure of energy, also contributing to such eye fatigue symptoms as eyestrain and headache." The many researches of Dr. Luckiesh and others are also in agreement in regard to the relationship of seeing conditions and fatigue.

Armed Services Check-up Seeing

Rather interesting confirmation of the benefit of good lighting and good seeing have come from both armed services during the war. At West Point the officials became greatly worried because of eye defects incurred during the training. From 1939 through 1943 cadets had to meet a rigid entrance requirement of 20/20 uncorrected vision, yet during the training period, the eyesight of 14.4 per cent of these cadets fell below the standards for commissions—a waste of manpower, money and effort. From 1936 to 1939, the cadets were admitted with a minimum visual acuity of 20/40 in each eye, correctable with glasses to 20/20. In this group, 18.1 per cent were below the standard required for commission at the end of their training. Data were kept on a group of 160 members of the classes of 1936 and 1937 and it was found that in a year of field duty where the eyes were used for long range seeing, with very little close work, the chance for rest from the rigorous academic preparation improved the vision of over 76 per cent of the affected eyes, some even returning to 20/20 vision. A Lighting Board was appointed under Major General F. B. Wilby, superintendent of the Academy, to study the situation. This Board reported "the universally present factor affecting the decline in visual efficiency was the condition of the lighting facilities in the study and classrooms and that the quantity and quality of light afforded cadets for study purposess had a direct bearing on the visual efficiency of the Corps as a whole. The inadequate illumination was found to be definitely aggravating and deteriorating especially to those eyes which had any tendency toward weakness. The Board further stated that it is of prime and paramount importance that adequate lighting, both in quantity and in quality, be provided for the intensive study work required by the academic program. On the recommendation of the Board, the study areas of the barracks rooms have been entirely relighted with semi-direct fluorescent equipment, giving high quality and good quantity of light.

In 1943, a bulletin was sent to the Commanding Officers of all Navy V-12 units from the Bureau of Navy Personnel of the Navy Department in Washington on the subject of improvement of lighting conditions for Navy V-12 units. It said in part, "One cause for future attrition of V-12 students that cannot be reduced in importance is impaired vision. Such impairment has been noted in the V-12 program, where students initially passed the eye test but showed impaired vision upon examination for training for active duty. The foregoing condition, which resulted in the loss of valuable officer material, is believed to be the direct result of generally faulty lighting in university dormitories and of faulty study habits. A survey of lighting conditions will therefore be made at the earliest practicable date by each Commanding Officer. The standards to be used are hereinafter cited. In addition, students will be instructed with respect to proper study habits." The report ended "This Bureau considers proper illumination to have a direct bearing on the efficiency of students and hence upon the success of the entire V-12 program and the progress of the institution." In the report, a lighting level of 30 footcandles was recommended for reading and 50 footcandles for close work.

Besides the contribution of good lighting to efficiency and to eyesight conservation, educators are realizing that one of their finest contributions to the school experience of children is to provide them with the best possible conditions in order to give a model environment in which they can live healthfully and happily. The aim in school lighting is to furnish the best in comfortable and efficient seeing in pleasant surroundings and it happens that the finishes of walls, ceilings,

desks and floors and the lighting system which gives the best seeing conditions also make up a very pleasant schoolroom from the appearance standpoint. Well shielded, low brightness lighting equipment, and finishes which are carefully selected as to reflection factor and characteristics so that the brightness ratios in the field of view may be in the comfort range are both attractive and efficient. The quantity of light and the quality of lighting them are both important.

Four Main Factors in Seeing

The four main controllable factors in seeing are (1) the size of an object, (2) the contrast between the details of the object and its immediate background, (3) the time available for seeing, and (4) the brightness of the object. All of these are affected by the quantity of light. Many school seeing tasks involve small size (such as print on maps, dictionaries and reference notes). Others involve poor brightness contrast—hard pencil marks on poor grade paper, light chalk on a dusty chalkboard, sewing with dark thread on dark materials—are some common examples. In others the time available for seeing is short. All of these tasks may be seen more clearly and more easily by the normal eye with more light. A common tendency is to carry such tasks to the windows where high lighting levels are available when the quantity of artificial lighting is inadequate.

There is much more to good lighting, however, than just supplying enough light. There must be a foundation of an adequate amount of light on which to build, but it must be of good quality in order to be comfortable and livable. For seeing in the schoolroom, in the home, or in the work world, good lighting quality means good distribution, absence of glare and good brightness control.

The problems of distribution and glare have been recognized for a long while and are considered seriously in lighting installations. The control of brightnesses represents a recent trend, however. Under the impetus of a report by the Committee on Standards of Quality and Quantity for Interior Illumination of the Illuminating Engineering Society, it is now realized that the control of brightnesses in the visual field is an important factor also in the ease and comfort of seeing.

This is a most important trend. It affects the lighting equipment and the surroundings. In a schoolroom the surroundings include the ceiling, walls, floor, desk tops and chalkboards. It integrates the whole room and the illuminating engineer who is conscientiously trying to provide the best seeing conditions becomes involved in all of these factors.

During the war years, school lighting has been virtually at a standstill, while our thoughts and energy went more directly to the war effort. Neither equipment or manpower was available to improve the lighting of the schools. The school executive, however, has been observing the great improvements in industrial and office lighting in the war plants and has recognized the value of such lighting for comfortable and efficient seeing. There is a widespread recognition that the greater part of the present school lighting is poor, and a desire to improve it. Much new lighting is going to be installed in the schools in the near future. Whatever goes in will stay for years. If this new lighting is uncomfortable or inadequate, it can do much harm. The responsibility of illuminating engineers in making recommendations for this new lighting is sobering. Their advice must be sound. It must be based on the fundamentals of efficient and comfortable seeing and it must be economically practical. The economic situation should be based on a long-term, over-all view, rather than on initial first cost figures. The same dangers exist in economic expediency that occur in political expediency. That is, what seems first to be the most economical may not be satisfactory or the most economical in the long run.

Right Lighting for Seeing

A new school lighting installation, even if it is only one room, has a far-reaching effect in the community. The children go home and talk about the new lighting, the parents come to see it, and discuss it, and there is a rapid and widespread interest in lighting and an increased light consciousness in the community. This is an additional and a very important reason why the lighting should be comfortable and of high quality. If it is uncomfortable because of excessive brightness, for example, and the children and teachers say, "I don't like the new lights—they hurt my eyes," not only that installation suffers but that reaction may have far-reaching results on new installations both in the schools and elsewhere. The ones who complain will not realize that the lamps are not to blame, but that the fault lies in the way in which they are used in this particular case. In fluorescent installations particularly a poor school lighting job may prejudice the community against fluorescent installations in general. More care in planning, and perhaps a small incremental increase in initial expenditure would make a great difference.

Good Examples

A few school lighting installations which have been designed to fulfill the principles of good lighting and good seeing are worth mentioning. They have been pioneers in their sections of the country and have created much interest in good lighting. Incandescent filament installations such as the kindergarten in the Caledonia school in E. Cleveland, Ohio, can give high quality seeing through careful control of brightness. Fluorescent installations in the Caledonia school, the Oak Park and River Forest Township High School in Oak Park, Ill., the Warring school in Poughkeepsie, N. Y., the Clover Park High School, near Tacoma, Wash., and the Oxford school in Cleveland Heights, Ohio, are leading the way in their localities in demonstrating how high quality in lighting and seeing can be obtained from fluorescent light sources in school rooms. Rooms like these go a long way in illustrating the principles of better light and better sight and serve as a basis for educational instruction of the type considered by the National Educational Association.

Better light and better sight through teaching involves a twofold program. We must teach the principles of good seeing and the attendant advantages and we must improve the lighting and seeing conditions of the classrooms of this country to conform. We must practice what we preach. It is a large program, but the returns will revolutionize the lighting and seeing practices of the country.

Volume 1 and 32 NELA Proceedings Needed for University Library

THE Lehigh University Library at Bethlehem, Pa., has a complete set of NELA Proceedings with the exception of Volumes 1 and 32. It will be appreciated if any one having unwanted or surplus copies of either or both these volumes will communicate with the Editor of EDISON ELECTRIC INSTITUTE BULLETIN, 420 Lexington Avenue, New York 17, New York.

Annual Meeting of Northwest Electric Light & Power Association

THE 39th annual meeting of the Northwest Electric Light & Power Association in Seattle, Wash., July 17, 1946, heard reports from retiring officers and section chairmen, and elected James H. Polhemus, president, Portland General Electric Co., president for the next administrative year. He succeeds Patrick Johnson, vice president, Puget Sound Power & Light Co., whose administration of association affairs during the past year was lauded by delegates as being most constructive, with many benefits flowing both to the industry and the public. W. L. Thrailkill, The Washington Water Power Co., Spokane, was elected vice president of the association.

One of the major objectives of the association will be to continue and to broaden and strengthen participation by electrical manufacturers, distributors, dealers and contractors, who took such prominent part in the programs of the association during the past year. It was pointed out that this is the only organization in the Northwest set up to bring together into a common meeting ground all these associated groups, and thus to treat the problems of each group from the standpoint of benefiting the industry as a whole.

It was reported that the association's Research Advisory Service, instituted recently under Ladner V. Ross, director, with headquarters in Spokane, Wash., had completed most of the organizational details and was commencing to furnish service to industrial concerns through utility company salesmen. Under this arrangement, production, processing and marketing problems of Northwest industrials will be submitted for answer to one or more of some 900 cooperating research laboratories of government, college and private industry in this country, Canada and Great Britain. Eight utility company members of the association have joined to offer this service to their industrial customers.

Other officers elected at the annual meeting were the following state vice presidents: Idaho, C. J. Strike, Idaho Power Co.; Montana, J. E. Corette Jr., Montana Power Co.; Oregon, T. E. Roach, Northwestern Electric Co.; Utah, R. H. Ashworth, Utah Power & Light Co.; Washington, H. C. Webb, Puget Sound Power & Light Co.; and British Columbia, T. M. Moran, B. C. Electric Railway Co.

Manufacturer, distributor, dealer and contractor delegates nominated, and the meeting elected the following to represent these groups on the executive committee: O. A. Alderman, McGraw Electric Co., F. T. Brien, Graybar Electric Co., G. Langtry Bell, Clarksons Ltd., and R. D. Horning, Seattle Electrical Contractors Assn. Utility company representatives on the committee are: Patrick Johnson, Puget Sound Power & Light Co., J. A. Hale, Utah Power & Light Co., and John C. Boyle, California Oregon Power Co.

After the meeting president Polhemus announced the appointment of the following section chairmen: Accounting and Business Practice, Henry Mann, Utah Power & Light Co.; Business Development, Henry Kruse, Puget Sound Power & Light Co.; Engineering and Operation, R. J. Davidson, Pacific Power & Light Co.; and Personnel, L. W. Nims, Utah Power & Light Co.

Other appointments by the president are, Waldemar Seton, Portland General Electric Co., to be treasurer, and Berkeley Snow executive secretary.

EEI Sales Training Course

(*Continued from page* 268)

cording to J. E. North, company sales manager.

"The advantages of this type of training were never more apparent than they are today. The day is not far distant when we re-enter the competitive field of sales. Increased production of old, established products and the introduction of new electrical merchandise will soon bring about the close of the shortage-fostered 'order taking' era in sales. The untrained salesman will be handicapped in the competitive field, and may prove to be a detriment to the dealer's progress by losing sales and good will. These courses offer the latest and best in sales instruction, and thoroughly prepare the salesman for the selling job that lies ahead of him," North writes.

British Columbia Electric Railway Company

British Columbia Electric Railway Company presented the EEI course to dealers and utility sales forces in the larger towns throughout its territory. Each presentation was set up differently to meet local needs to the best advantage.

The eight basic films were condensed into five meetings which were held during one week, or spread over several weeks, as conditions warranted. The residential films, dealing with specific appliances, were shown and discussed according to the merchandising situation in each town.

An additional feature of the course which proved effective was the selection of an outstanding speaker to address each meeting on a subject of direct interest to all sales personnel.

Mimeographed booklets were prepared by the company for distribution at each meeting. These booklets were based on the EEI salesman's manuals, and included local information and suggestions on effective appliance selling.

According to J. H. Taylor, Director of Dealer Development for the utility, observation of methods used by dealers and their staffs in customer contacts since completion of the classes, has already revealed many practical results of the sales training course.

"The product films have been useful, particularly the water heater film, entirely apart from the regular course," Mr. Taylor says. "We have been holding a number of small group study classes with the dealers and their sales staffs, dealing with the subject of water heating, which is a very new one so far as the dealers are concerned.

"I like the idea of salesmen throughout the electrical industry being trained along the same lines," Mr. Taylor continued. "So far as our own company is concerned, I feel that we have already received value for the money spent on the purchase of the training films."

The above are only a few of the many successful presentations of the EEI Sales Training Course that might be cited. But they are sufficient to show that companies taking advantage of the present lull to sponsor this course have been repaid in terms of better industry cooperation and the improved efficiency of industry sales staffs in their areas.

When the appliance shortage eases these companies can expect additional repayment for their foresight in terms of extra—and lasting—load.

Major Load Building

(*Continued from page 272*)

6. Establish an annual award for the best paper by a power salesman, covering any field of electric heating. Awards have been established in recognition of domestic, rural, lighting and various other activities, but up to the present, electric heating, the most important load building medium in the electric industry, together with the men who have been responsible for its development in the field, has received no such recognition.

The late Alex Dow once said, "Industrial heating is not a single subject of definite limits that can be included in the education and experience of one man. It is a collection of many subjects of varied and diverse natures. If a man takes the time to become really expert in one main branch of heat application, he will not find time during his span of life to learn all there is to know about very many others." By thus encouraging the preparation of papers by men on the job who know what they are talking about, and providing suitable distribution for all such papers submitted, a medium would be established for distributing factual data to others less fortunate in their opportunities for acquiring such knowledge. Whenever power men congregate in bull sessions, one subject that is sure to be raised is how to obtain information on what the other fellow is accomplishing. This award might supply one answer to this need.

In recognition of his outstanding leadership in the pioneer development of industrial electric heating, this honor might be called the Alex Dow Award. Or, since this is the 40th anniversary of the first patent granted to Albert L. Marsh covering the development of nickel-chromium alloys, the basis of most electric heating load, it might appropriately be called the Albert L. Marsh Award.

7. And finally, whatever may be undertaken will, I have no doubt, be aided and encouraged by such trade papers as *Electrical World,* Burr Martin's *Electrified Industry, Electric Light and Power,* and other comparable publications in the electrical field.

Time does not permit even a sketchy development of the suggestions outlined above. If they contain a kernel of merit which may serve as a basis for organizing more comprehensive, coordinated activities, I know that the development of such a project can be entrusted to the capable hands of your Power and Heating Committee.

The first World War introduced to industry the potentialities of electric heat and effectively exploded the bug-a-boo of high cost.

The second World War has established it on a firm foundation as an efficient and necessary tool in modern industrial production. We now have the opportunity—the challenge—to capitalize on this favorable situation and REALLY build load with ELECTRIC HEAT!

Economics of Rural Electrification

(*Continued from page 276*)

may compel us to raise our sights even higher. I think our industry has a sizable task to create a market for electricity where it has invested substantial sums in rural distribution lines. The market among productive farms such as we serve can be developed and we shall do our utmost to make the greater use of electricity profitable to the farm consumer for in doing so we expect to provide ourselves with a profitable and lasting market.

Meanwhile the availability of electricity to our farms and rural dwellers will make country life more attractive to everybody and particularly to the young folks. Farming as a career will have more appeal to this and future generations with electricity. Production will be greater per man and the farm net income will be greater. When farm net incomes are greater all business benefits because the farmer constitutes one of the greatest buying groups. When the farmer is prosperous everybody else is too.

Electricity can do for the farms of New England what it has already done for New England industries, if it is applied with the same degree of intelligence.

Employes Get "Job Well Done" Booklet

"A JOB Well Done" is the title of a new booklet recently issued by Union Electric Company of Missouri to its employees. The booklet contained a letter of transmittal by President J. W. McAfee congratulating the employes on the Meritorious Wartime Service Awards presented by the Army and Navy May 14. It also contained excerpts from the speeches made on the occasion of the awards' presentation. The citations are reproduced in the booklet each with an accompanying paragraph of explanation.

Harry J. Burton

HARRY J. BURTON, general safety supervisor for Consumers Power Company and in its employ since 1912, died July 26 in the Foote Hospital, Jackson, Mich., following a brief illness.

A member of the Accident Prevention Committee of the Edison Electric Institute and its predecessor, the National Electric Light Association, at various times for the past 29 years, Mr. Burton had a national reputation for his contributions to the cause of accident prevention in the electric industry. For a number of years prior to his death he had also served as one of a committee of judges for the Edison Electric Institute Medal for Resuscitation.

Mr. Burton was born in 1882 in Egremont, near Liverpool, England, reared and educated in London, where he attended St. Stephens College, learned the trade of electrician, and was one of the workmen who helped wire several of the buildings in the famous Picadilly Circus.

He came to the United States in 1900, his first job being with a small electric company in Philadelphia and Brighton, N. J., as electrician. Later he joined the General Electric Co. in Schenectady and received special training there.

In 1912 he went to Jackson to assist T. A. Kenny work out a system of load dispatching for the Au Sable Electric Co. which later was acquired by Consumers Power Co. He was advanced to chief of operations and load dispatcher, a position he held for several years until he became director of the company's department of personnel.

Mr. Burton had a long record of useful civic activities in his home city, and was a member of the American Institute of Electrical Engineers. In addition to his service with his company and nationally in safety affairs, he had served as secretary of the Accident Prevention Committee of the Great Lakes division of NELA.

E.E.I. PUBLICATIONS AND SERVICE MATERIAL

(Prices include transportation in U. S. only. Please order by number shown before title. Standing Orders may be placed for a specified number of copies of reports of various committees as issued, to be shipped to one address.)

Payable in United States Currency—Postage Stamps Not Acceptable

Accounting and Statistical

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Digest of Authoritative Opinions of the Definition of Original Cost (Including Appendix on "Prudent Investment") 1938	$1.50	$1.50
Proceedings—National Accounting Conferences		
Complete Set—8th Conference 1944	2.00	2.00
" " 7th " 1943	2.00	2.00
" " 5th " 1941	2.00	2.00
" " 4th " 1940	2.00	2.00
" " 3rd " 1939	2.00	2.00
" " 2nd " 1938	1.50	1.50
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Classification of Accounts	.50	.50
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Depreciation	.50	.50
Plant Accounting and Records	.50	.50
General Sessions	.50	.50
Summary of Definitions Covering Depreciation and Related Terms 1939.	1.00	1.00
Statistical		
O-2—Electric Light and Power Industry 1945-1946	.30	.85
M-2—Electric Light and Power Industry, 1944 (1945)	.30	.85
L-2—Electric Light and Power Industry in 1943 (1944)	.30	.75
K-2—Electric Light and Power Industry in 1942 (6/43)	.75	.75
J-2—Electric Light and Power Industry in 1941 (5/42)	.30	.75
I-2—Electric Light and Power Industry in 1940 (5/41)	.30	.75
(Statistical Bulletins also available for years 1932 to 1939 inclusive) each	.30	.75
Weekly, Monthly and Annual Statistics (Includes Annual Statistical Bulletin; Weekly Electric Power output; Monthly Electrical Research Statistics).	2.00	2.00

Engineering Committees

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M-10—Fifteen Messages on Accident Prevention in Electric Utilities	.10	.10
L-4—Linemen Cutouts (2/45)	.10	
K-8—Pole Top Resuscitation (9/43)	.10	
(Quantity Prices on Application)		
J-9—1941 Accident Statistics of Electric Light & Power Industry (12/42)	.10	.25
F-10—Tree Trimming Practices (10/38)	.20	.50
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10— 99 "	.08 "	
100—499 "	.06 "	
C-14—Resuscitation Charts (4/36)	.10	.10
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L-5—Interim Report of The American Research Committee on Grounding (1/44)	.10	
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I-9—Standards for Distribution Transformers (Second Report) EEI-NEMA (12/41)	$0.25	$0.60
I-8—Susceptiveness of Subscriber Station Sets—Engineering Report No. 46—Joint Subcommittee on Development and Research (12/41)	60	1.50
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New Teachers' Manual Discusses Lighting for Shops and Special Classrooms

LIGHTING for grade and vocational schools should be individually prescribed for each classroom, according to the activities in each, it is recommended in "Lighting for Shops and Special Classrooms," a 42-page teachers' manual just published by the National Education Association, Washington, D. C.

The increasing variety of vocational subjects taught in schools means a corresponding increase in the different visual tasks required of pupils, the manual states. Vocational training in such fields as stenography, typing, office machines, drafting, woodworking, machine and electrical shops, welding, forging, automobile repair, dressmaking, restaurant management, beauty services, barbering and others, is now commonplace in schools. For best results, each subject demands its own lighting, planned and engineered for special intensities and types of light sources. Competent specialists in the field of lighting must be consulted for best results, it is emphasized.

After a short explanation of the advantages and principles of good lighting, the manual discusses the basic essentials of natural and artificial light, and the more common visual tasks in which pupils will engage. It then takes the reader on a tour of the classrooms in which rigorous demands are made on the pupils' eyes, such as the sheet metal, printing and machine shops, listing the principal seeing tasks performed in each, and suggested intensities and types of fixtures for adequate light.

The manual concludes with a discussion of lighting maintenance, and wiring for classrooms. A bibliography is included for further study.

Prepared with the assistance of the Better Light-Better Sight Bureau, this manual is an authoritative treatment of lighting applications for the varied requirements of modern vocational and general schools.

"Lighting for Shops and Special Classrooms" is available from the National Education Association, 1201 Sixteenth Street, Washington, D. C., at 10c per single copy.

National Educational Programs

	Members	Non-Members
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Commercial Cooking Survey, 1942	$0.25	$0.25
Sales Training Manual—Commercial Electric Cooking, 1941	1-4 copies	$1.50
	5-14 "	1.25
	15 or more	1.00
Domestic Cooking		
Meals Go Modern Electrically (Special prices in quantity)	.25	.25
Electric Kitchens		
How To Make It Happen in Your Kitchen	$2.25 per 100	
How to Plan a Modern All-Electric Kitchen	$2.00 per 100	
The Principles of Kitchen Planning	.25	.25
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"Dealer Education"—Series of 10 films and 10 discussion manuals. Five on basic selling and five on product selling, i.e., refrigerators, ranges, roasters, water heaters and laundry equipment. Price on meter basis for entire series	$125 to $275	
Lighting Booklets		
Better Light—Better Sight—Better Production	$1.50 per 100	
Better Light—Better Sight—Better Living	$3.00 per 100	
Better Light—Better Sight—Better Sales	$1.50 per 100	
Priceless Eyes	4.50 per 100	
Lighting Films		
"Let There Be Light" (Street Lighting) sound slide film, 15 minutes, 75 frames	$25.00	$25.00
"See For Yourself" (Home Lighting) sound slide film, 15 minutes, 105 frames	$30.00	$30.00
Wiring		
Rewiring for Commercial and Industrial Buildings	$0.25	$0.25
Basic Factors of Adequate Wiring—1939	.25	.25
Covered Neutral Cable Helps Sell Adequate Home Wiring—1939	.25	.25
Commercial Building Re-wiring Market—1939	.35	.35
(Price on above three books as a group is 60c per set)		
Films		
Commercial Re-Wiring — lantern slides	Set	$17.50
Home Wiring—lantern slides	Set	25.00

Miscellaneous, Reference Books, etc.

	Members	Non-Members
M-13—Specifications for Impregnated Paper-Insulated Lead Covered Cable, "Solid" Type, "Oil-Filled" Type	Single copies	$1.00
	10 or more "	.85
Code for Electricity Meters (1941)	$1.60	$2.00
Good Radio Reception (1937)	100 copies	4.00
	1000 "	25.00
	3000 "	60.00
	5000 "	95.00
Objective Type Rates, 1933-1936	.80	2.00
Ice and Wind Loading Tables for Overhead Line Conductors (Revision of Tables 85 to 96 of the Overhead System Reference Book) 1942	1-4 copies	10c.
	5-49 "	6c.
Power Sales Manual, plus Sec. 12-13-14-15	5.35	7.60
Rate Book for 1943	10.00	25.00
Rewiring for Commercial and Industrial Buildings (1941)	.25	.25
Sales Training Manual—Commercial Electric Cooking (1941)	1.50	1.50
Storm Loading and Strength of Wood Pole Lines and a Study of Wind Gusts (1936)	2.00	5.00
Weekly, Monthly and Annual Statistics (Includes Annual Statistical Bulletin; Weekly Electric Power Output; Monthly Electrical Research Statistics)	2.00	2.00

Periodicals

	Members	Non-Members
Better Light—Better Sight News (9 issues yearly)	$0.75	$0.75
Edison Electric Institute Bulletin (Monthly)	2.00	2.00
Rural Electrification Bulletin (5 issues yearly)		1.00

PERSONALS

CHARLES WERT ROBERTS, former Macon division superintendent, has been named to succeed the late B. R. Chestney as vice-president and Macon division manager of Georgia Power Company.

W. E. HOLLINGSWORTH, assistant division superintendent, has been appointed division superintendent, succeeding Mr. Roberts.

A native of Wadley, Ala., Mr. Roberts was graduated from the Alabama Polytechnic Institute at Auburn with a degree in electrical engineering in 1927. After two years with the General Electric Co. in Schenectady, he joined the operating department of Georgia Power in Atlanta in January, 1929.

Mr. Roberts was transferred to Augusta in March, 1930, where he served as assistant division superintendent until December, 1936, when he was made division superintendent. In October, 1938, Mr. Roberts was transferred to Macon as division superintendent.

Mr. Hollingsworth has been assistant Macon division superintendent for the past eight years. Before going to Macon, he was assistant superintendent of the Columbus division.

A native of Fairburn, Ga., Mr. Hollingsworth attended the Ocilla schools and the Marion Institute at Marion, Ala., before being appointed to the United States Naval Academy. In 1924 he was appointed superintendent of the Ocilla Water and Light Department, and in 1926 he became local manager at Ocilla for a predecessor company. He was promoted to district manager in 1935 and in the next year was made assistant superintendent of the Columbus division.

H. R. WALDO has been elected president of the Telluride Power Company, Richfield, Utah, to succeed H. B. WATERS, who has been made chairman of the board of directors.

Mr. Waters has been president since 1940. Mr. Waldo has been serving as secretary. Both make their headquarters in Salt Lake City, although the company serves southern Utah.

Both Mr. Waters and Mr. Waldo joined Telluride in 1911. Mr. Waters served first as engineer in charge of construction of a plant on the Malad River, Idaho, while Mr. Waldo was employed first in the Provo office. When the Malad River plant was sold to Idaho Power Co. in 1916, Mr. Waters moved to Richfield to direct development of properties in southern Utah. Mr. Waldo is succeeded as secretary by W. L. BIERSACH, Richfield, who also is treasurer.

L. HAROLD ANDERSON has resigned his position as president of the California Railroad Commission to become a vice-president of the Pacific Gas and Electric Company.

Mr. Anderson was graduated from Stanford University in 1923 with a degree in electrical engineering. His first position was with the engineering department at Palo Alto, Calif., and within a few years he became director of the city's electric, gas and water properties. In 1940 he was chosen city engineer and held that position until 1945 when he was appointed by Gov. Earl Warren to the State Railroad Commission. Taking office on the commission Jan. 4, he was elected president of the body the 26th of the same month.

Mr. Anderson was for 10 years president of the California Municipal Utilities Association and for two years president of the Pacific Coast Building Officials Conference.

His duties with P. G. & E. will be of a general nature, President J. B. Black of the company reported, and will include special assignments pertaining to the construction and operation of the company's properties and its customer relations.

HENRY S. DAVIS has been appointed manager of the Philadelphia Electric Company's Eastern Division, with headquarters at Jenkintown, Pa., to succeed the late William G. Sterrett, it was recently announced by Horace P. Liversidge, president of the company.

Mr. Davis, a graduate electrical engineer of the Massachusetts Institute of Technology and an alumnus of Pennsylvania State College, was first employed by the Philadelphia Electric Company in 1923 for special engineering work. He became superintendent of the company's underground division in 1928. Subsequently he was advanced to the post of the division superintendent at Morton, Pa., later moving to Norristown, Pa., in the same capacity.

In 1943 he was appointed general manager of the Conowingo Power Company at Elkton, Md., and occupied that position at the time of his recent appointment.

J. FRANK BLAKE, JR., has been appointed manager of the Conowingo Power Company, with headquarters in Elkton, Md., it was recently announced by Albert R. Granger, president of the company. He succeeds Henry S. Davis, who has been appointed division manager of the Philadelphia Electric Company's Eastern Division at Jenkintown, Pa.

Mr. Blake is well known in this area, having lived and worked in or near Elkton all his life. He was born in Childs, Md., and received his early education there. He was graduated from Washington College at Chestertown, Md.

Before joining the Electric Company, he spent six years in the employ of the Elkton Banking and Trust Company, and one year with the U. S. Engineering Department at Chesapeake City.

He joined the Electric Company organization in 1935 as a retail salesman, and has been engaged in that work since then. He was sales manager at the time of his appointment to his present position.

JOHN J. DALY, sales promotion manager for the Connecticut Light and Power Company, has been named Retail Sales Manager of the company to succeed William M. Walsh, merchandising manager, who died July 24, it was announced by A. V. S. Lindsley, vice-president in charge of sales.

A major in the Army Air Forces during the war, and former commercial manager of the company's Southern Division, Mr. Daly will be responsible for the staff planning phase for the full development of the company's retail markets.

He will be assisted by CHARLES A. BYRON, newly appointed Appliance Manager, in charge of appliance sales and preparation of sales plans. Until

his recent promotion, Mr. Byron had been assistant merchandising manager.

Four executive appointments have been recently announced by New Jersey Power and Light Company. HAROLD S. DUBOIS, of 26 Princeton Avenue, Dover, has been named manager of the company's Southern District. SVEN E. RYSTEDT, of 34B Lakewood Drive, Denville, has been appointed electrical engineer. ROLAND P. BORDEN, of 45 Grand Avenue, Washington, N. J., became electrical superintendent. WALTER E. GESS of 26 Main Street, Flemington, N. J., has been named manager of the Western District.

Mr. DuBois, who has served as supervisor of the Rural Lines Department for over a year, has been employed by the company in the Dover office since 1930, when he worked as a representative of the Commercial and Industrial Sales Department. He transferred to the Rural Lines Department in 1941. His new assignment will take him to Flemington, headquarters office for the Southern District.

Mr. Rystedt will have charge of all substation, transmission and street lighting engineering functions. He began his career in the electric utility field 24 years ago, working for the New York Power and Light Corp., for 21 years. With his background in electrical designing and engineering, he was employed by New Jersey Power and Light Company in 1944 as a transmission engineer.

Mr. Borden's position will bring him to the company's main office in Dover, where he will have charge of all central operating activities and will act as coordinating executive for the company in all district operating matters. In the utility business for 21 years, Mr. Borden was employed by the company in 1927 as superintendent of the High Bridge District. Prior to his new assignment, he was manager of the Western District.

Mr. Gess will be at the headquarters office of the Western District in Washington, N. J. He has been in the utility field since 1929, when he was employed by the Metropolitan Edison Company in eastern Pennsylvania. In 1939, he came to New Jersey Power and Light Company as superintendent of the Flemington District. In 1945, following formation of the company's Southern District, which embraces Flemington, Lambertville and Frenchtown, Mr. Gess was named district manager.

JOHN THORNBORROW, formerly with the Middle West Service Company and Cleveland Electric Illuminating Company, has joined the rate department of Ebasco Services, Inc., New York, as rate consultant.

Mr. Thornborrow received his education at Illinois Wesleyan University and at the University of Illinois from which he received his B. S. degree in public utility operation and management, M. S. degree in public utility economics and Ph. D. degree in economics. During his college career he worked part time in the sales department of the Central Illinois Public Service Co.

In 1935 he joined the statistical and rate department of that company and two years later was appointed rate engineer for the Southwestern Gas and Electric Company, the position he held until he became identified with the staff of the Middle West Service Co. in 1940. In 1945 Mr. Thornborrow was appointed supervisor of the special studies for Cleveland Electric Illuminating Co., relinquishing these duties to join Ebasco Services.

KEN MAGERS, prominently identified with the electric appliance, as well as lighting sales and advertising fields for many years, has joined Burton-Rodgers, Inc., Cincinnati, as advertising and sales promotion manager. For 20 years Mr. Magers was advertising and publicity manager of the Cincinnati Gas and Electric Co. Before his present connection, he was identified with Foster & Davies, Cleveland advertising agency.

Appointment of ARTHUR J. REYNOLDS, dealer sales promotion representative of Utah Power and Light Co., as manager of the Intermountain Electrical Association, has been announced. Mr. Reynolds will devote his full time to his new duties with the association. He succeeds Elias J. Strong, who resigned to become secretary-manager of the Utah Automobile Dealers' Association.

Mr. Reynolds has been identified with Utah Power and Light Co. for the past 18 years. From 1940 to 1944 he was supervisor of the company's customer service department. He also participated in the federal training within industry program. For the past several months his activities have been devoted to the dealer sales promotion work.

Record Is Set in Adding New Homes to Lines

IN spite of the housing shortage and the difficulties encountered in procuring poles, wires, and electrical equipment, the electric light and power industry added 800,000 new homes to their lines during the first six months of 1946, according to calculations made by the Edison Electric Institute. If this rate of 135,000 per month continues throughout the year, the 1,600,000 new homes connected during 1946 will constitute the largest number in any year in the history of the utility industry. It is almost twice the 836,000 connected in all of 1945 and 7 per cent above the 1924 high record of 1,500,000.

A large proportion of these new electric customers have come on the lines in rural areas and must be due, in part, to the reopening of unoccupied dwellings and, in part, to the erection of new houses. This latter indicates that new housing gets going much more rapidly in rural areas.

According to preliminary estimates, about 70 per cent of all users of residential electricity, or some 20,000,000 customers, are located in urban districts, (which means in cities, towns, and villages of more than 2500 population). Judging from the reports of the larger urban companies, which showed an increase in residential customers of less than 1 per cent during the first half of 1946, only a quarter of the new electric customers have originated inurban territory. In the rural areas, however, (which include communities of less than 2500 population, "open country" and farms, and take in the remaining 30 per cent of residential electric users, or some 9,500,000 homes and farms) the expansion both of housing and of utility lines has been extraordinary and has averaged some 100,000 per month, of which the REA accounts for some 20,000.

According to a rough state-by-state analysis, the largest rate of growth in the new electric consumers has taken place in the South, the industrialized urban states north of the Ohio and east of the Mississippi having shown only relatively small increases. Taken in order, the West South Central states showed the most rapid growth, followed in turn by the East South Central, South Atlantic, Mountain, West North Central and rural New England.

Puget Power's Report Wins Top Honor

PUGET Sound Power & Light Company's 1945 Annual Report to Stockholders has won first place in a nationwide contest sponsored by the Public Utilities Advertising Association, according to a recent announcement. Judges based their selection on makeup, content and typography and found Puget Power's entry was tops in its class.

This marked the third consecutive year the company's annual report achieved national prominence. In 1943, it captured first place in the widely-publicized Reddy Kilowatt contest. Again in 1944 the company took the top spot in the Reddy Kilowatt contest and also was named winner of the Financial World competition, open to private utilities throughout America.

The 52-page booklet carries as a theme the roll Puget Power has played in the development and progress of the Northwest during the 60 years the company has served western and central Washington. The organization was founded in 1885 and has grown to where it furnishes electric light and power to 18 counties.

J. H. Polhemus Elected Head of Northwest Association

JAMES H. POLHEMUS, president, Portland General Electric Co., Portland, Ore., who was elected president of the Northwest Electric Light and Power Association at the annual meeting held recently in Seattle, entered the electric utility industry in 1936 after a long career in the civil engineering field. In that year he resigned as general manager and chief engineer of the Port of Portland to take the executive vice-presidency of Portland Electric Power Co., Portland General Electric Co. and Portland Traction Co. In 1940 he was made president of Portland General Electric Co. and divorced his interests from the other two companies.

Mr. Polhemus has been president of the Portland chapter of A.S.C.E., is on the board of directors of the Edison Electric Institute, and has served the Northwest Electric Light and Power Association as vice-president for Oregon, and on its executive committee. He has been a director of the Portland Chamber of Commerce and has served the community in numerous other civic enterprises.

CONVENTIONS AND MEETINGS

1946

AUGUST

22 Electric Companies Advertising Program, Copy Group Meeting, Greenwich, Conn.

SEPTEMBER

5-7 Rocky Mountain Electrical League, Estes Park, Colo.
11 Electric Companies Advertising Program, Management Group, New York, N. Y.
15-18 Controllers Institute of America, Commodore Hotel, New York, N. Y.
16-17 American Transit Association, Palmer House, Chicago, Ill.
18-21 Illuminating Engineering Society, National Convention, Chateau Frontenac, Quebec, Can.
20-21 Public Utilities Association of the Virginias, The Homestead, Hot Springs, Va.
23-25 Northwestern Section, IAEI, Boise Hotel, Boise, Idaho.
25-27 Indiana Electric Association, French Lick Springs Hotel, French Lick, Ind.
30-Oct. 2 Southwestern Section, IAEI, Hotel Sacramento, Sacramento, Cal.

OCTOBER

1-3 Meter and Service Committee, EEI, Hotel Roosevelt, New Orleans, La.
3-4 Southeastern Electric Exchange, Engineering and Operation Sections, Henry Grady Hotel, Atlanta, Ga.
4-5 Electrical Equipment Committee, EEI, New Ocean House, Swampscott, Mass.
6-7 Prime Movers Committee, EEI, Hotel Roosevelt, New Orleans, La.
7-8 Transmission and Distribution Committee, EEI, Cavalier Hotel, Virginia Beach, Va.
7-11 American Gas Association, Atlantic City, N. J.
7-11 National Safety Congress, Hotels Stevens, Congress and Palmer House, Chicago, Ill.
14-16 Southern Section, IAEI, George Vanderbilt Hotel, Asheville, N. C.
14-18 National Electrical Contractors Association, Ritz Carlton Hotel, Atlantic City, N. J.
17-18 Southeastern Electric Exchange, Accounting Section, Fort Sumter Hotel, Charleston, S. C.
21-23 Western Section IAEI, Gibson Hotel, Cincinnati, Ohio.
24-25 Pennsylvania Electric Association, Electrical Equipment Committee, Lord Baltimore Hotel, Baltimore, Md.
24-25 Pennsylvania Electric Association, Transmission and Distribution Committee, Abraham Lincoln Hotel, Reading, Pa.
27-31 National Electrical Manufacturers Association, Annual Meeting, Hotel Traymore, Atlantic City, N. J.
28-30 Eastern Section, IAEI, Mark Twain Hotel, Elmira, N. Y.
31-Nov. 1 Accident Prevention Committee, EEI, Hotel Statler, Buffalo, N. Y.

NOVEMBER

6-8 Southeastern Electric Exchange, General Sales Conference, Atlanta Biltmore Hotel, Atlanta, Ga.
7-8 National Farm Electrification Conference, Sherman Hotel, Chicago, Ill.
12-15 National Association of Railroad and Utilities Commissioners, New Orleans, La.

DECEMBER

2-6 The American Society of Mechanical Engineers, Hotel Pennsylvania, New York, N. Y.

1947

JANUARY

27-31 American Institute of Electrical Engineers, New York, N. Y.

APRIL

March 31-April 3 Thirteenth Annual Sales Conference, EEI, Edgewater Beach Hotel, Chicago, Ill.
7-9 AGA-EEI National Accounting Conference, Hotel Statler, Buffalo, N. Y.
28-30 Engineering Committees, EEI, Edgewater Beach Hotel, Chicago, Ill.

MAY

5-9 National Electrical Wholesalers Association, Hotel Traymore, Atlantic City, N. J.
27-29 National Association of Purchasing Agents, Chicago, Ill.

JUNE

2-5 EDISON ELECTRIC INSTITUTE, Annual Meeting, Atlantic City, N. J.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

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MAE B. WOODS, *Secretary*.....420 Lexington Avenue, New York 17, N. Y.

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(Terms Expiring 1947)

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(Terms Expiring 1948)

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(Terms Expiring 1949)

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A. H. KEHOE.....Consolidated Edison Company of New York, Inc., New York, N. Y.
WILLIAM KELLY.....Buffalo Niagara Electric Corp., Buffalo, N. Y.
FRANK KRUESI.....Middle West Service Co., Chicago, Ill.
ELMER L. LINDSETH.....The Cleveland Electric Illuminating Co., New York, N. Y.
C. E. MICHEL.....Union Electric Company of Missouri, St. Louis, Mo.
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WILLIAM WEBSTER.....New England Power Association, Boston, Mass.
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H. E. YOUNG.....Northern States Power Co., Minneapolis, Minn.

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The Executive Committee consists of the following members of the Board of Directors: Messrs. W. C. Bell, H. B. Bryans, W. H. Burke, William Kelly, P. H. Powers, W. H. Sammis, E. C. Stone, P. S. Young.

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(Continued)

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Customer Activities, W. E. STURM.....West Penn Power Co., Pittsburgh, Pa.
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Hydraulic Power, PAUL M. LEFEVER.....Susquehanna Electric Co., Conowingo, Md.
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Prime Movers, R. M. VAN DUZER, JR.....The Detroit Edison Co., Detroit, Mich.
Transmission and Distribution, L. R. GATY.....Philadelphia Electric Co., Philadelphia, Pa.

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Statistical, WINSOR MARTIN.....Public Utility Engineering and Service Corp., Chicago, Ill.
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